DX-3/S

SHARP

SERVICE MANUAL/SERVICE-ANLEITUNG/MANUEL DE SERVICE

ATSM383003PLY (REVISED) (VERBESSERTE AUFLAGE) (EDITION REVUE ET CORRIGE)

COMPACT disc DIGITAL AUDIO

DX-3
DX-3S

- The disc shown on the photo is not a supplied accessary.
- Die Schallplatte auf der Photo ist kein mitgeliefertes Zubehör.
- Le disque montré sur la photo n'est pas inclus dans l'achat de cet appareil.

- In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.
- Im Interesse der Benutzer-Sicherheit sollte dieses Gerät wieder auf seinen ursprünglichen Zustand eingestellt und nur die vorgeschriebenen Teile verwendet werden.
- Dans l'intérêt de l'utilisateur, l'appareil doit être reconstitué dans sa condition première et seules des pièces identiques à celles spécifiées, doivent être utilisées.

(E)

REVISED EDITION

We published the revised edition of the Adjustment and checking of each circuit, wiring side of P.W. Board, the schematic diagram and the replacement parts list in accordance with the modification of servo circuit. So, put this edition into practice with the service manual for DX-3/S (ATSM383003PLY).
Replacement parts list are changed from units of serial No. 306xxxxx.

(D)

VERBESSERTE AUFLAGE

Wir haben die verbesserte Auflage der Einstellung und Überprüfung jeden Schaltkreises, der Verdrahtungsseite der Leiterplatte, des schematischen Schaltplans und der Ersatzteilliste gemäß der Modifikation des Servokreises verlegt. Verwenden Sie diese Auflage mit der Service-Anleitung für DX-3/S (ATSM383003PLY).
Die Ersatzteilliste wird von den Einheiten der Serien-Nr. 306xxxxx geändert.

(F)

EDITION REVUE ET CORRIGEE

Nous publions une édition revue et corrigée pour le réglage et vérification de chaque circuit, le côté câblage de la plaquette de montage imprimé, le diagramme schématique et la liste des pièces de rechange conformément à la modification du servo circuit. Ainsi, mettre cette édition en pratique avec le manuel de service pour le DX-3/S (ATSM383003PLY).
Les éléments décrits dans la Liste des pièces de rechange seront changés à partir des appareils portant le N° de série 306xxxxx.

SHARP CORPORATION OSAKA, JAPAN

ADJUSTMENT AND CHECKING OF EACH CIRCUIT

Notes before servicing:
In the DX-3, the circuit units are connected with each other by means of the connectors as shown in Fig. 5 and they can be separated from each other by disconnecting the connectors. Therefore it is possible to adjust or check the separated unit independently from the others. On the mother P.W.B. are installed the servo unit and demodulator unit. When servicing these two units, it is recommended to use a 44-pin extension P.W.B. to connect them to the mother P.W.B. for easier service work.

Procedures for Adjustment and Checking of Each Unit
(1) Checking of power voltage applied to each unit
(2) Checking of drive unit
Checking and adjustment of laser current
(3) Adjustment of servo unit and pick-up posture
Adjustment of focus offset, focus gain, tracking offset, tracking gain, auto offset
Adjustment of pick-up posture
(4) Adjustment and checking of the outputs of demodulator unit and audio output unit
Removal of 44.1kHz component, 34.7MHz clock frequency. VCO free-run frequency, spin offset, VCO offset

1. Chcking of power voltage to be applied to each circuit (see Fig. 7)
- Servo unit: ±5V, ±15V, ±9V
- Demodulator unit: ±5V, ±15V, AC 8V
- Audio output unit: ±15V
- Mother P.W.B.: ±5V, ±15V, AC 8V
- Drive unit: +5V, +15V, ±9V
- Display unit: ±5V, −22V, AC 5.5V, AC 8V, +15V
- RSD amplifier unit: ±15V
- Power unit: ±5V, ±9V, ±15V, −22V, AC 5.5V, AC 8V
- ARC unit: ±15V, +5V

2. Checking and adjustment of drive unit (laser current)
Laser current checking
(1) Disconnect CNP401, CNP403, CNS103-A and CNS103-B from the drive unit P.W.B.
(2) Notice the specified amperage (Im) for the laser output monitor which is shown in the label attached to the side of the pick-up unit. See Fig. 54-1.
(3) Connect electronic voltmeter to both ends of TP401 (test pin) on the drive unit P.W.B.
(4) Connect pin (2) (LANF) of CNP403 on the drive unit P.W.B. to ground.
(5) Turn on the power switch.
(6) See that the electronic voltmeter reads the specificed value (Im x 10mV).

Laser current adjustment
1. After replacement of the pick-up or when the electronic voltmeter doesn't read the specified value (Im x 10mV) in the above laser current checking, adjust the laser current as follows.
2. Turn the variable resistor VR401 (for laser current adjustment) fully counterclockwise.
At the time, keep the power switch turned off.
3. Check the laser current according to the instruction in steps 1 to 5 of the above "Laser current checking."
4. Slowly turn the variable resistor VR401 clockwise until the electronic voltmeter reads the specified value (Im x 10mV).

Note:
If the variable resistor VR401 is turned quickly without care, an excess of current is caused to damage the laser diode in the pick-up. Avoid this when turning the variable resistor VR401.

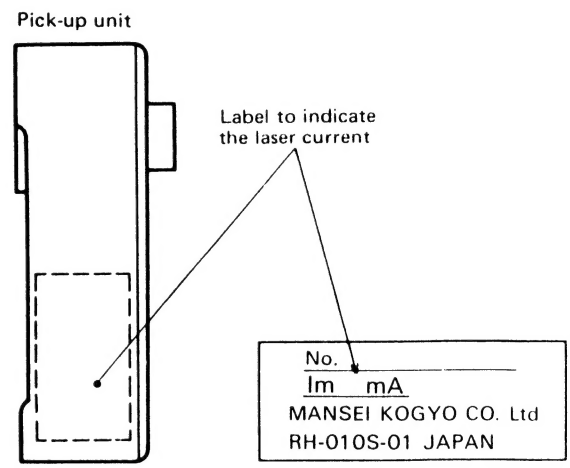


Figure 54-1 Laser Current Indication Label

< Rated laser current >
The laser monitor current Im (rated current) is indicated on the label at the side of the pick-up unit. In checking this in voltage, it is counted as (Im x 10mV) with the electronic voltmeter (of 10 ohm internal resistance).

Cautions on Circuit Adjustment
For adjustment of the pick-up height and posture, be careful to that the pick-up adjusting screws (N1 for height adjustment, N2 for tilt adjustment and N3 for azimuth adjustment) be not tightened too strongly. Otherwise, the object lens of the pick-up will touch the disc to give scars on it.

GB

3. Adjustment of servo unit

< Preparation >

(1) Remove the servo unit P.W.B. referring to the procedure in "DISASSEMBLY [E] –1."
(2) Connect this servo unit P.W.B. to the 44-pin extension P.W.B.
(3) Disconnect CNS102 (TP107) from the servo unit P.W.B.
(4) Connect a resistor (8.2 kohms) in parallel to both ends of the resistor R163.
(5) Set the variable resistor VR101 to the center position.
(6) Disconnect CNP403 from the drive unit P.W.B. and connect pin (2) (LANF) to ground.
(7) Adjust the setting position of the variable resistor VR203 according to the marks to "P", "P.O", "O" and "M.O" put on the label of the pick up assembly: these marks refer to the pick up offset values.

Note:
For the adjustments in steps 7 and 11, use a disc on which a 0.8 mm wide tape (black) is applied.
See Fig.62-2.

Marks on the label	Setting position of VR203
P	Turn VR203 fully counterclockwise.
P.O	Set VR203 first to the center position and then turn it by 90° in the counterclockwise direction.
O	Set VR203 to the center position.
M.O.	Set VR203 first to the center position and then turn it by 90° in the clockwise direction.
M	Turn VR203 fully clockwise.

(8) Set the variable resistor VR201 to the center position. And set the variable resistor VR202 first to the extreme left position and then turn it by 70° in the clockwise direction.

Instruments in use:

- Square wave signal generator
- Dual-beam synchroscope (50 MHz)
- Hexagon wrench (1.27mm)
- Box screwdriver (5mm)
- Slotted screwdriver (used for the adjustment)
- DC voltmeter
- 44-pin extension P.W.B. :DUNTW0042AF01
- Test disc (SHARP VOL. 1 YGDS-1) :RRCDA1015AFZZ (For the adjustment, play this disc at its middle point but not at its start or end point.)

STEP	ITEMS	INSTRUMENTS IN USE	ADJUST POINTS	TEST POINTS	ADJUSTMENTS	REMARKS
1	Turn on the power switch and see that the music program indicator is lighting: at the time, keep the demodulator PWB removed. Press the eject button and put a disc into the unit: the disc starts to rotate and stops in a few seconds.					
2	Pick-up height adjustment (with the disc in spinning) In the case of replacing the pick-up	Synchroscope Hexagon wrench	Pick-up adjust screws N1, N2 and N3. In this step, mainly use the screw N1 for pick-up height adjustment.	TP105	0V	
3	Focus offset/tracking gain/ RF gain adjustment	Synchroscope Slotted screwdriver	VR102 VR103 VR204A	TP103(RF)	• Adjust VR102 so that the eye pattern becomes flat. • Adjust VR103 so that the eye pattern becomes clear. • Adjust VR204A so that the eye pattern output is 4Vp-p.	
4	Servo spin motor adjustment	Synchroscope (0.2μsec/DIV)	R244	TP103	See that the 1st eye pattern is crossed at the point "7±0.3".	If the crossing point is less than "6.7", remove R244 (150K ohm)
5	After these adjustments, turn off the power switch and connect the demodualtor PWB to the unit. Then turn on the power switch and play the disc.					
6	Pick-up posture adjustment In the case of replacing the pick-up	Hexagon wrench	Pick-up adjust screws N1, N2 and N3. In this step, mainly use the screws N2 and N3 for pick-up tilt and azimuth	TP103 TP105→0V	Adjust so that RF signal output level is the highest with flat phase characteristic (at the eye pattern).	
7	Focus offset adjustment	Synchroscope Slotted screwdriver	VR102	TP103 (RF) TP105 (Focus drive)	Observe the output signals of TP103 and TP105 at a time on synchroscope, and adjust VR102 so that the depressed part of RF signal is the minimum as shown in right.	RF signal — minimum depression; Focus drive signal
8	Focus balance adjustment	Synchroscope Slotted screwdriver	VR202A	TP103	Adjust VR202A so that the eye pattern becomes clear.	
9	Recheck the step 7 "Focus offset adjustment", and if it is found disaligned take the steps 7 and 8 again.					
10	Tracking offset adjustment	Synchroscope Slotted screwdriver	VR104	Connect oscillator to TP110 as shown in Fig. 57-1. TP103	Adjust VR104 so that the RF signal output of TP103 provides the same depression at its upper and lower parts: this depression is to occur in sync with rising and breaking of the oscillation output (60Hz) of TP110. See the figure shown in right.	RF signal of TP103; Square wave signal of TP110
11	Tracking balance adjustment	Synchroscope Slotted screwdriver	VR201A	TP103 (RF signal) TP108 (Tracking error signal)	Observe the output signals of TP103 and TP108 at a time on synchroscope and adjust VR201A so that the tracking error signal output is as flat as possible.	RF signal of TP103; TP108 After adjustment; TP108 *Before adjustment
12	Recheck the step 10 "Tracking offset adjustment", and if it is found disaligned, take the steps 10 and 11 again. Recheck the step 7 "Focus offset adjustment", and if it is found disaligned, take the steps 7, 8, 10 and 11 again.					
13	Tracking gain adjustment	Synchroscope Slotted screwdriver	VR103	TP108	Adjust VR103 so that the output waveform at TP108 slightly oscillates.	Waveform at TP108
14	Remove the resistor which has been connected in parallel to the resistor R163.					
15	RF gain adjustment	Synchroscope Slotted screwdriver	VR204A	TP103 (RF signal)	Adjust VR204A so that RF signal output of TP103 has 4.0±0.5Vp-p.	
16	Automatic focus offset voltage adjustment	Synchroscope Slotted screwdriver	VR105	TP107	Adjust VR105 so that the otuput voltage of TP107 is 0V.	
17	Connect CNS102 (TP107) again.					
18	Proceed with the step 7 "Focus offset adjustment" again and see that the output voltage of TP109 is 0±50mV.					
19	Automatic tracking control adjustment	Electronic voltmeter Slotted screwdriver	VR1 Connect the center pin of VR103 to GND.	TP1 TP2	While the unit is reading the signal of the lead-in track of the disc, adjust VR1 so that the output of TP1 is 0.5V lower than that of TP2.	
20	After the adjustments in the steps 1 to 19, tighten the nut to secure the pick-up by using box screwdriver: this tightening should be made slowly not to impair the adjustments.					

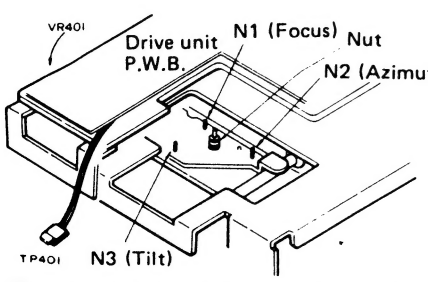


Figure 57-2 Adjustment of Pick-up Posture

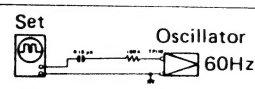


Figure 57-1

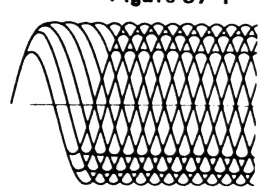
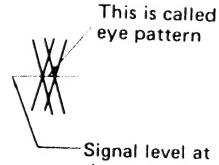


Figure 57-3 Eye Pattern



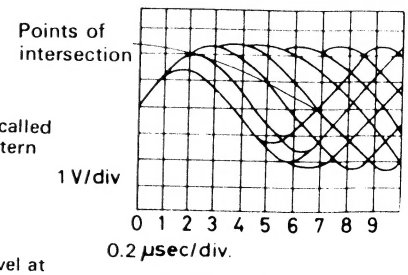


Figure 57-4

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3. Einstellung der Servoeinheit

< **Vorbereitung** >

(1) Die Servoeinheit-Druckschaltungsplatte unter Bezug auf das Vorgehen bei "DEMONTAGE [E]-1" entfernen.
(2) Diese Servoeinheit-Druckschaltungsplatte an die 44-stiftige Vergrößerungsdruckschaltungsplatte anschließen.
(3) CNS102 (TP107) von der Servoeinheit-Druckschaltungsplatte abtrennen.
(4) Einen Widerstand (8,2 kOhm) an beiden Enden des Widerstands R163 parallel schließen.
(5) Den Regelwiderstand VR101 auf die Mittelstellung einstellen.
(6) CNP403 von der Antriebseinheit-Druckschaltungsplattte abtrennen und Stift ② (LANF) erden.
(7) Die Einstellposition des Regelwiderstandes VR203 auf "P", "P.O", "O" und "M.O" gemäß den Marken einstellen, die auf dem Aufkleber der Tonabnehmer-Baueinheit gedruckt sind: Diese Marken gelten für die Abweichungswerte des Tonabnehmers.

Anmerkung:

Für die Einstellungen in Schritte 7 und II eine Disc verwenden, auf der ein 0,8 mm breites Band (schwarz) geklebt ist. Siehe Abb 62-2.

Marken auf dem Aufkleber	Einstellposition von VR203
P	VR203 bis zum Anschlag entgegen dem Uhrzeigersinn drehen.
P.O	VR203 erstens auf die Mittelstellung einstellen und dann um 90° entgegen dem Uhrzeigersinn drehen.
O	VR203 auf die Mittelstellung einstellen.
M.O	VR203 erstens auf die Mittelstellung einstellen und dann um 90° im Uhrzeigersinn drehen.
M	VR203 bis zum Anschlag im Uhrzeigersinn drehen.

(8) Den Regelwiderstand VR201 auf die Mittelstellung einstellen. Und den Regelwiderstand VR202 erstens auf die entrem linke Stellung einstellen und dann um 70° im Uhrzeigersinn drehen.

Zu verwendende Instrumente:

- Rechteck signal generator
- Doppelstrahlsynchroskop (50 MHz)
- Sechskantschlüssel (1,27 mm)
- Innenschraubenzieher (5 mm)
- Schlitzschraubenzieher (für Einstellung gebraucht)
- Gleichstrom-Voltmeter
- 44-stiftige Vergrößerungsdruckschaltplatte :DUNTW0042AF01
- Testschallplatte (SHARP VOL. 1 YGDS-1) :RRCDA1015AFZZ

(Beim Einstellen nicht am Anfang oder Ende der Platte, sondern in der Mitte abspielen).

SCHRITT	GEGENSTAND	ZU VERWENDENDE INSTRUMENTE	EINSTELLPUNKT	TESTPUNKT	EINSTELLUNG	BEMERKUNGEN
1	Den Netzschalter einschalten und sehen, daß die Musikprogrammanzeige aufleuchtet; die Demodulator-Druckschaltungsplatte dabei abgetrennt lassen. Den Eject-Knopf drucken und eine Schallplatte in das Gerät einlegen; die Schallplatte beginnt sich zu drehen und stoppt einige Sekunden später.					
2	Tonabnehmer-Höheneinstellung (bei sich drehender Schallplatte) Wenn der Tonabnehmer ausgetauscht wurde.	Synchroskop Sechskantschlüsser	Tonabnehmer-Einstellschrauben N1, N2 und N3. Bei diesem Schritt hauptsächlich die Schraube N1 zur Einstellung der Tonabnehmerhöhe benutzen.	TP105	0V	
3	Brennpunktausweichungs-/ Abtastungsverstarkungs-/ RF-Verstärkungs-Einstellung	Synchroskop Schlitzschraubenzieher	VR102 VR103 VR204A	TP103(RF)	• VR102 so einstellen, daß das Augenmuster flach wird. • VR103 so einstellen, daß das Augenmuster klar wird. • VR204A so einstellen, daß die Augenmusterausgangsspannung 4Vp-p betragt.	
4	Servodrehungs-Motoreinstellung	Synchroskop (0,2μsec/DIV)	R244	TP103	Sicherstellen, daß das 1. Augenmuster im Punkt "7±0,3" überkreuzt wird.	Wenn der Kreuzungspunkt unter "6,7" liegt, R244 (140 kOhm) entfernen.
5	Nach diesen Einstellungen den Netzschalter ausstellen und die Demodulator-Druckschaltungsplatte an das Gerät anschließen. Den Netzschalter wieder anstellen und die Schallplatte abspielen.					
6	Abnehmerstellungs Einstellung Wenn der Tonabnehmer ausgetauscht wurde	Sechskantschlussel	Tonabnehmereinstellschrauben N1, N2 und N3. Bei diesem Schritt hauptsachlich die Schrauben N2 und N3 für Tonabnehmereigungs- und Azimutheinstellung benutzen.	TP103 TP105→0V	So einstellen, daß der RF-Signalausgangspegel bei flacher Phasencharakteristik am hochsten ist (bei Augenmuster).	
7	Brennpunkt-Ausweichungseinstellung	Synchroskop Schlitzschraubenzieher	VR102	TP103 (RF) TP105 (Brennpunktantrieb)	Das Ausgangssignal von TP103 und TP105 hintereinander mit dem Synchroskop kontrollieren, und VR102 so einstellen, daß das Wellental des RF-Signals das Minimum wie rechts abgebildet erreicht.	RF-Signal Wellental-Minimum Brennpunkt-Antriebssignal
8	Brennpunkt-Balanceeinstellung	Synchroskop Schlitzschraubenzieher	VR202A	TP103	VR202A so einstellen, daß das Augenmuster klar wird.	
9	Schritt 7 ("Brennpunkt-Ausweichungseinstellung") nochmals überprüfen; bei Abweichungen Schritte 7 und 8 wiederholen.					
10	Abtastungs-Ausweichungseinstellung	Synchroskop Schlitzschraubenzieher	VR104	Den Oszillator an TP110 wie in Abb. 57-1. aufgezeigt anschließen. TP103	VR104 so einstellen, daß die Amplituden des Wellentals und Wellenbergs des RF-Signals am Ausgang von TP103 identisch sind. Die Schwingungen des RF-Signals sollten mit den Schwingungen (60 Hz) am Ausgang von TP110 synchron übereinstimmen. Siehe die Abbildung rechts.	RF-Signal von TP103 Rechteckwellensignal von TP110
11	Abtastungs Balanceeinstellung	Synchroskop Schlitzschraubenzieher	VR201A	TP103 (RF-Signal) TP108 (Abtastungsfehlersignal)	Das Ausgangssignal von TP103 und TP108 hintereinander auf dem Synchroskop kontrollieren, und VR201A so einstellen, daß das Abtastungsfehlersignal so flach wie möglich ist.	RF-Signal von TP103 TP108 Nach der Einstellung TP108 Vor der Einstellung
12	Schritt 10 ("Abtastungs-Ausweichungseinstellung") nochmals überprüfen; bei Abweichungen Schritte 10 und 11 wiederholen. Schritt 7 ("Brennpunkt-Ausweichungseinstellung") nochmals überprüfen; bei Abweichungen Schritte 7, 8, 10 und 11 wiederholen.					
13	Abtastungs-Verstärkungseinstellung	Synchroskop Schlitzschraubenzieher	VR103	TP108	VR103 so einstellen, daß die Ausgangswellenform am TP108 leicht oszilliert.	Wellenform am TP108
14	Den Widerstand, welcher mit Widerstand R163 parallelgeschaltet wurde, entfernen.					
15	RF-Verstärkungseinstellung	Synchroskop Schlitzschraubenzieher	VR204A	TP103 (RF-Signal)	VR204A so einstellen, da das RF Signal am Ausgang von TP103 4,0±0,5Vp-p betragt.	
16	Automatische Brennpunkt-Ausweichspannungseinstellung	Synchroskop Schlitzschraubenzieher	VR105	TP107	VR105 so einstellen, daß die Ausgangsspannung von TP107 0V betragt.	
17	CNS102 (TP107) wieder anschließen.					
18	Mit Schritt 7 ("Brennpunkt-Ausweichungseinstellung") fortfahren und darauf achten, daß die Ausgangsspannung von TP109 0±50mV betragt.					
19	Automatische Abtastungs Vorsteuerungseinstellung	Elektronisches Voltmeter Schlitzschraubenzieher	VR1 Den mittleren Stift von VR107 an die Erde anschließen.	TP1 TP2	Während das Gerät das Signal der Einleitspur der Schallplatte abtuft, VR1 so einstellen, daß am Ausgang von TP1 0,5 V weniger anliegen als am Ausgang von TP2.	
20	Nach der Einstellung bei den Schritten 1 bis 19 die Mutter mit einem Innenschraubenzieher festziehen, um den Tonabnehmer zu sichern. Dieses Festziehen langsam ausführen, um die vorher gemachten Einstellungen nicht zu verstellen.					

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(3) Réglage du dispositif servo

< Préparation >

1. Enlever la plaquette de montage imprimé du dispositif servo en se référant aux instructions "DEMONTAGE Ⓔ – 1".
2. Brancher cette plaquette de montage imprimé du dispositif servo à la plaquette de montage imprimé d'extension de 44 broches.
3. Débrancher, de la plaquette de montage imprimé du dispositif servo, CNS102 (TP107).
4. Brancher une résistance (8,2 kohms) en parallèle aux deux bouts de la résistance R163.
5. Mettre la résistance variable VR101 en position centrale.
6. Débrancher CNP403 de la plaquette de montage imprimé du dispositif d'entraînement et brancher la broche ② (LANF) à la terre.

(7) Régler la position de mise au point de la résistance variable VR203 selon les repères à "P", "P.O", "O" et "M.O" inscrits sur l'étiquette de l'ensemble de la tête de lecture: ces repères se réfèrent aux valeurs de décentrement du photocapteur.

Note:

Pour les réglages aux étapes 7 et 11, utiliser un disque sur lequel une bande d'une largeur de 8 mm (noire) est appliquée. Voir la figure 62-2.

Repères sur l'étiquette	Position de mise au points de VR203
P	Tourner la VR203 complètement à gauche.
P.O	Mettre d'abord la VR203 en position centrale et ensuite la tourner de 90° dans le sens inverse des aiguilles d'une montre.
O	Régler la VR203 sur la position centrale.
M.O.	Mettre d'abord la VR203 en position centrale et ensuite la tourner de 90° dans le sens inverse des aiguilles d'une montre.
M	Tourner la VR203 complétemet dans le sens des aiguilles d'une montre.

(8) Régler la résistance variable VR201 sur la position centrale. Et mettre d'abord la résistance variable VR202 en position, extrêmement gauche et ensuite la tourner de 70° dans le sens inverse des aiguilles d'une montre.

Instruments à utiliser

- Générateur de signaux d'onde
- Synchroscope à double trace (50 MHz)
- Clé hexagonale (1,27 mm)
- Tournevis à tube (5 mm)
- Tournevis rainuré (utilisé pour le réglage)
- Voltmètre CC
- Plaquette de montage imrpimé d'extension de 44 broches :DUNTW0042AF01
- Disque d'essai (SHARP VOL. 1 YGDS-1) :RRCDA1015AFZZ (Pour le réglage, faire lire ce disque à son milieu mais pas à son point de départ ni à sa fin.)

ETAPE	ARTICLE	INSTRUMENTS UTILISES	POINT DE REGLAGE	POINT D'ESSAI	RÉGLAGE	REMARQUES
1	Allumer le commutateur d'alimentation et voir si le témoin de programme musical est allumé: à ce moment, laisser la PMI du démodulateur déposée. Enfoncer le bouton d'éjection et placer un disque dans l'appareil: le disque commence à tourner et s'arrête après quelques secondes.					
2	Réglage de la hauteur du pick-up (avec le disque en rotation) Dans le cas du remplacement du pick-up	Synchroscope Clé hexagonale	Vis de réglage de la tête, N1, N2 et N3. Dans cette étape, utiliser principalement la vis N1 pour le réglage de la hauteur du pick-up.	TP105	0V	
3	Réglage du décalage de foyer/gain de pistage/gain RF	Synchroscope Tournevis cruciforme	VR102 VR103 VR204A	TP103 (RF)	• Régler VR102 pour que la mire à œil soit plate. • Régler VR103 pour que la mire à œil soit claire. • Régler VR204A pour que la sortie de la mire à œil soit de 4V c. à c.	
4	Réglage du servo moteur de rotation	Synchroscope (0,2μs. DIV)	R244	TP103	Voir si le liére mire à œil est croisée au point "7±0,3".	Si le point de croisement est inférieur à "6,7", déposer R224 (150 kohms).
5	Après ces réglages, couper le commutateur d'alimentation et brancher la PMI du démodulateur à l'appareil. Puis, allumer le commutateur d'alimentation et lire un disque.					
6	Réglage de position du pick-up Dans le cas du remplacement du pick-up	Clé hexagonale	Vis de réglage de tête N1, N2 et N3. Dans cette étape, utiliser principalement la vis N2 et la vis N3 pour le réglage d'inclinaison et d'azimuth du pick-up.	TP103 TP105→0V	Régler pour que le niveau de sortie du signal RF soit le plus haut avec la caractéristique de phase plate (à la mire à œil).	
7	Réglage du décalage du foyer	Synchroscope Tournevis cruciforme	VR102	TP103 (RF) TP105 (Entraînement du foyer)	Observer les signaux de sortie de TP103 et de TP105 en même temps sur le synchroscope et régler VR102 pour que la partie incurvée du signal RF soit minimale comme montré à droite.	Signal RF Signal d'entraînement du foyer Concavité minimale
8	Réglage de l'équilibre du foyer	Synchroscope Tournevis cruciforme	VR202A	TP103	Régler VR202A de telle sorte que la mire à œil soit claire.	
9	Revérifier l'étape 7 "Réglage du décalage du foyer" et en cas de mauvais alignement, refaire les étapes 7 et 8.					
10	Réglage du décalage de pistage	Synchroscope Tournevis cruciforme	VR104	Brancher l'oscillateur à TP110 comme le montre la Fig. 57-1. TP103	Régler VR104 de telle sorte que le signal de sortie RF de TP103 fournisse la même concavité à sa partie supérieure et à sa partie inférieure: cette concavité se produit synchrone avec l'apparition et la disparition de la sortie d'oscillation (60Hz) de TP110. Voir la figure de droite.	Signal RF de TP103. Signal d'onde carrée de TP110.
11	Réglage de l'équilibrage de pistage	Synchroscope Tournevis cruciforme	VR201A	TP103 (signal RF) TP108 (signal d'erreur de pistage)	Observer les signaux de sortie de TP103 et de TP108 en même temps sur le synchroscope et régler VR201A pour que la sortie du signal d'erreur de pistage soit aussi plate que possible.	Signal RF de TP103 TP108 TP108 After adjustment Before adjustment
12	Revérifier l'étape 10 "Réglage du décalage de pistage" et si elle est mal alignée, refaire les étapes 10 et 11. Revérifier l'étape 7 "Réglage du décalage du foyer" et si elle est mal alignée refaire les étapes 7, 8, 10 et 11.					
13	Réglage du gain de pistage	Synchroscope Tournevis cruciforme	VR103	TP108	Régler VR103 pour que la forme d'onde de sortie à TP108 oscille légèrement	Forme d'onde à TP108.
14	Déposer la résistance qui a été branchée en parallèle à la résistance R163.					
15	Réglage du gain RF	Synchroscope Tournevis cruciforme	VR204A	TP103 (Signal RF)	Régler VR204A pour que la sortie du signal RF à TP103 soit de 4,0±0,5V c. à c.	
16	Réglage automatique de la tension de décalage du foyer	Synchroscope Tournevis cruciforme	VR105	TP107	Régler de telle sorte que la tension de sortie de TP107 soit de 0V.	
17	Rebrancher CNS102 (TP107).					
18	Effectuer l'étape 7 "Réglage du décalage de foyer" et voir si la tension de sortie de TP109 est de 0±50mV.					
19	Réglage de la commande automatique de pistage	Voltmètre électronique Tournevis cruciforme	VR1 Brancher la broche centrale de VR103 à GND.	TP1 TP2	Quand l'appareil lit le signal du sillon d'entrée du disque, régler VR1 de telle sorte que la sortie de TP1 soit de 0,5V inférieur à celle de TP2.	
20	Après le réglage des étapes 1 à 19, serrer l'écrou de fixation de la tête à l'aise d'un tournevis à douille: ce serrage doit être effectué lentement pour ne pas détériorer les réglages.					

4. Adjustment and checking of demodulator unit and audio output unit

< Preparation >

1. Remove the demodualtor unit P.W.B. referring to the instruction in "DISASSEMBLY [E]-1."
2. Connect the demodualtor unit P.W.B. to the 44-pin extension P.W.B.
3. Turn on the power switch.

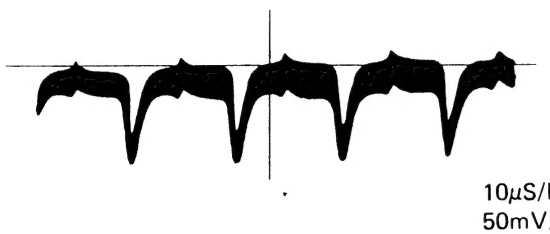
< Adjustment >

• Adjustment of 44.1kHz component (to be removed)

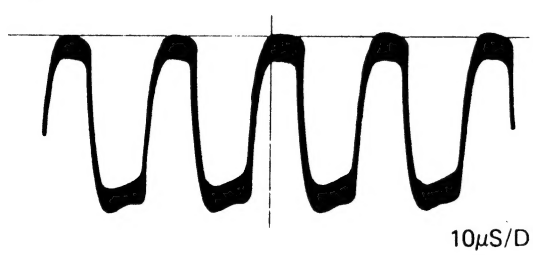
1. Perform the adjustment with no signal input (without the disc loaded).
2. Connect oscilloscope to TP703 (resistor R703) and/or TP702 (resistor R702).
3. Adjust the variable resistor VR302 and/or VR303 so that the output waveform of 44.1kHz component is the least.

Output Waveform of TP703 and/or TP702

- Output waveform at the time of correct adjustment (with no signal input)



- Output waveform at the time of poor adjustment (with no signal input)



• Adjustment of 34.5744 MHz clock frequency level

1. Perform the adjustment with no signal input.
2. Connect synchroscope to TP305.
3. Adjust the coil L300 so that there is 90% of the maximum peak-to-peak voltage at the clock oscillation waveform.

•

1. Push the eject button and put the test disc into the unit. The disc starts to rotate and stops in a few seconds.
2. Perform the adjustment when the disc is stopping.
3. Shortcircuit TP301 and TP303 (+5V).

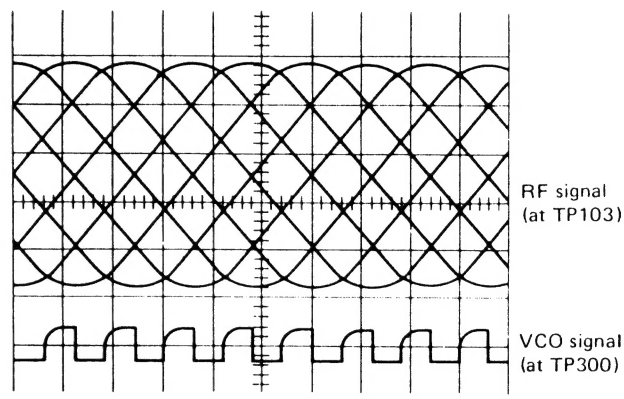
- Short the zener diode D203 in the RSD (RF Signal Drive) P.W.B.
  Adjust the variable resistor VR300 so that the clock frequency at TP300 becomes 4321kHz ±20kHz. After that, remove the shortcircuit between TP301 and TP303.

  Note:
  The frequency counter in use should be the one having the input impedance of more than 1 Meg ohm.

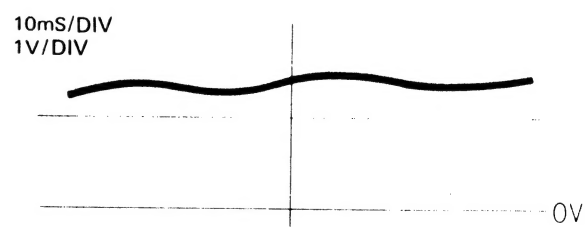
• Adjustment of pick-up spin offset (VR304)

1. Perform the adjustment while the Disk is spinning.
2. Connect 2-channel oscilloscope between TP103 (for RF signal) at the servo unit P.W.B. and TP300 (for VCO signal) at the demodulator unit: keep TP300 externally triggered. Set the variable resistor VR301 at the center position and adjust the variable resistor VR304 so that the output waveforms of both RF signal and VCO signal are in sync with each other.
3. Connect oscilloscope to TP304 and adjust the variable resistor VR304 to obtain the output waveform of +2.5V ±0.1V.

Output waveforms of RF signal and VCO signal in sync with each other



Output waveform at TP304 while the disc is playing (with correct adjustment):



• Adjustment of VCO offset (VR301)

Keeping the pickup in motion without disc playing, connect a synchroscope to TP302 and adjust VR301 so that the output waveform has the same amplitude in up and down directions.

Note:

For this adjustment, push the forward key and reverse key alternately so that the pickup continues to move over the disc without playing.

Ⓓ

4. Einstellung und Überprüfung von Demodulator- und Tonausgangseinheit

< Vorbereitung >

1. Die Demodulatoreinheit-Druckschaltungsplatte unter Bezug auf "DEMONTAGE [E]-1" entfernen.
2. Die Demodulatoreinheit-Druckschaltungsplatte an die 44-stiftige Vergrößerungsdruckschaltungsplatte anschließen.
3. Den Netzschalter einschalten.

< Einstellung >

- **Einstellung des 44,1 kHz-Bestandteils (der entfernt wird)**

1. Die Einstellung ohne Signaleingang (ohne eingelegte Schallplatte) ausführen.
2. Oszilloskop an TP703 (Widerstand R703) und/oder TP702 (Widerstand R702) anschließen.
3. Den Regelwiderstand VR302 und/oder VR303 so einstellen, daß die Ausgangswellenform des 44,1 kHz-Bestandteils am kleinsten ist.

Ausgangswellenform von TP703 und/oder TP702

- Ausgangswellenform bei korrekter Einstellung (ohne Signaleingang)
- Ausgangswellenform bei schlechter Einstellung (ohne Signaleingang)

- **Einstellung des 34,5744 MHz-Taktfrequenzpegels**

1. Die Einstellung ohne Signaleingabe ausführen.
2. Synchroskop an TP105 anschließen.
3. Die Spule L300 so einstellen, daß es 90% Von Maximum-Spitze-zu-Spitze-Spannung auf der Taktschwingungs-wellenform gibt.

- **Einstellung von VCO-Freilauffrequenz**

1. Den Auswurfknopf drücken und die Testschallplatte einlegen. Die Platte fängt an zu rotieren und stoppt nach ein paar Sekunden.
2. Wenn die Schallplatte stoppt, die Einstellung durchführen.
3. TP301 und TP303 (+5 V) kurzschließen.

- Die Zenerdiode D203 in der RSD(RF-Signalantrieb)-Druckschaltung kurzschließen.
  Den Regelwiderstand VR300 so einstellen, daß die Taktfrequenz bei TP300 4321 kHz ±20 kHz wird. Danach den Kurzschluß zwischen TP301 und TP303 aufheben.
  Anmerkung:
  Der verwendete Frequenzzähler sollte derjenige mit einer Eingangsimpedanz von 1 MOhm sein.

- **Einstellung der Tonabnehmerausweichung (VR304)**

1. Die Einstellung während der Tonabnehmer sich dreht ausführen.
2. 2-Kanal-Oszilloskop zwischen TP103 (für RF-Signal), an der Servoeinheit-Druckschaltungsplatte, und TP300 (für VCO-Signal), an der Demodulatorservoeinheit, schließen: TP300 extern ausgelöst lassen. Den Regelwiderstand VR301 in die Mittelstellung stellen und den Regelwiderstand VR304 so einstellen, daß die Ausgangswellenformen von RF-Signal und VCO-Signal miteinander synchron (sync) sind.
3. Oszilloskop an TP304 anschließen und den Regelwiderstand VR304 so einstellen, daß eine Ausgangswellenform von +2,5 V ±0,1 V erhalten wird.

- **Einstellung von VCO-Ausweichung (VR301)**
  Ohne Wiedergabe der Disc den Tonabnehmer fortbewegen, ein Synchronskop an TP302 anschließen und VR301 so einstellen, daß die Ausgangswellenform die gleiche Amplitude in den oberen und unteren Richtungen hat.
  Anmerkung:
  Für diese Einstellung die Vorlauf- und Rücklauftaste abwechselnd drücken, so daß der Tonabnehmer sich auf der Disc ohne Wiedergabe fortbewegt.

Ⓕ

(4) Réglage et vérification du dispositif de démodulateur et du dispositif de sortie audio

<Préparation>

1. Enlever la plaquette de montage imprimé du dispositif du démodulateur en se référant aux instructions mentionnées dans "DEMONTAGE [E] – 1".
2. Brancher la plaquette de montage imprimé du dispositif du démodulateur à la plaquette de montage imprimé d'extension de 44 broches.
3. Brancher le commutateur d'alimentation.

<Réglage>

- **Réglage de l'élément 44,1 kHz (à être enlevé)**

1. Effectuer le réglage sans aucune entrée de signal (sans le disque chargé).
2. Brancher l'oscilloscope à TP703 (résistance R703) et/ou TP702 (réistance R702).
3. Régler la résistance variable VR302 et/ou VR303 de sorte que la forme d'onde de sortie de l'élément 44,1 kHz soit minimum.

Forme d'onde de sortie de TP703 et/ou TP702

- Forme d'onde de sortie au moment du réglage correct (sans entrée de signal)
- Forme d'onde de sortie au moment de mauvais réglage (sans entrée de signal)

- **Adjustment of 34.5744 MHz clock frequency level**

1. Perform the adjustment with no signal input.
2. Connect synchroscope to TP105.
3. Régler la bobine L300 de telle sorte qu'il y ait 90% de la tension de crête à crête maximale à la forme d'onde d'oscillations pendulaires.

- **Réglage de la fréquence libre VCO**

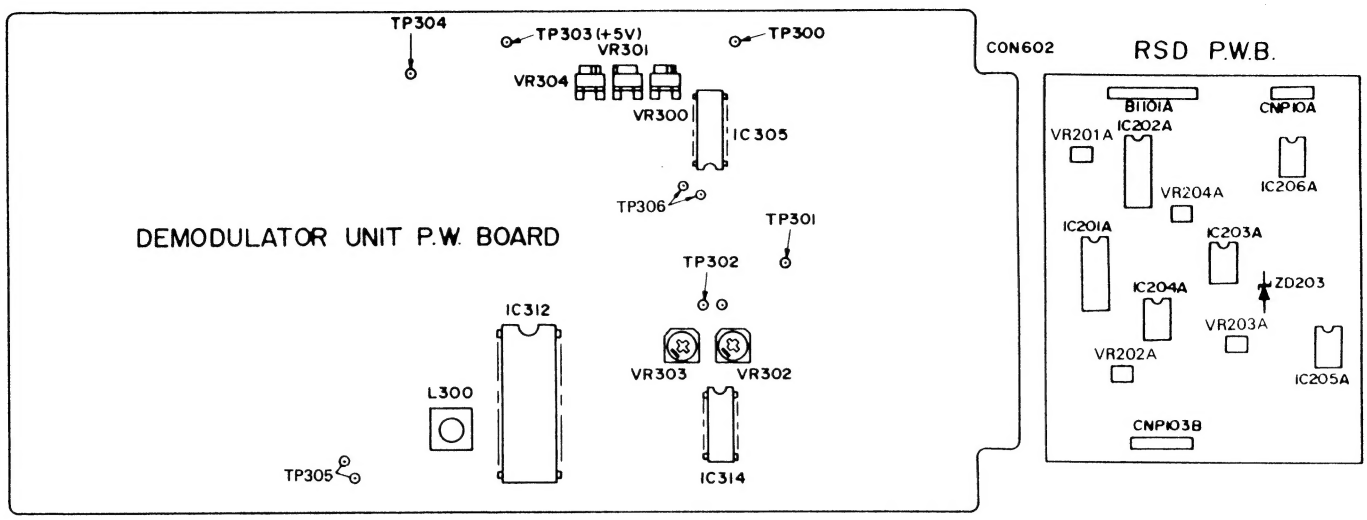
1. Pousser le bouton d'éjection et mettre le disque d'essai dans l'appareil. Le disque commence à tourner et s'arrête dans quelques secondes.
2. Effectuer le réglage quand le disque est arrêté.
3. Court-circuiter TP301 et TP303 (+5 V).

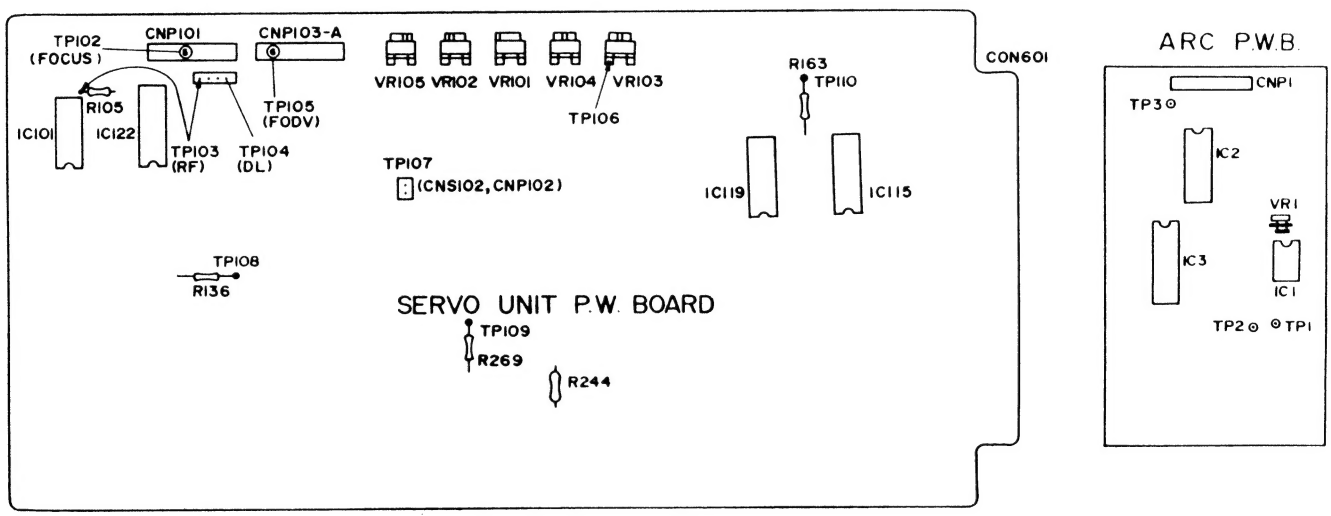
- Court-circuiter la diode zener D203 dans la PMI de RSD (déclenchement de signaux R.F.)
  Régler le résistance variable VR300 de sorte que la fréquence de l'horloge à TP300 devienne de 4321 kHz ± 20 kHz. Enlever ensuite le court-circuit entre TP301 et TP303.
  Note:
  Le compteur de fréquence utilisé doit avoir une impédance d'entrée supérieure à 1 Mohm.

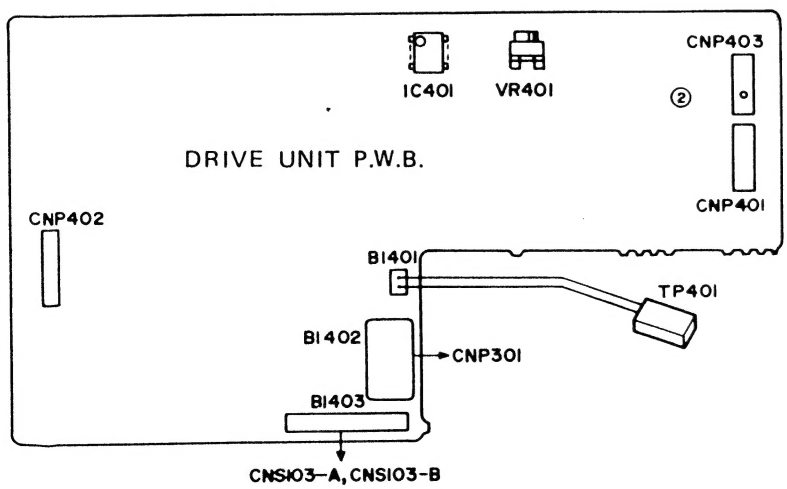
- **Réglage du décalage de rotation du pick-up (VR304)**

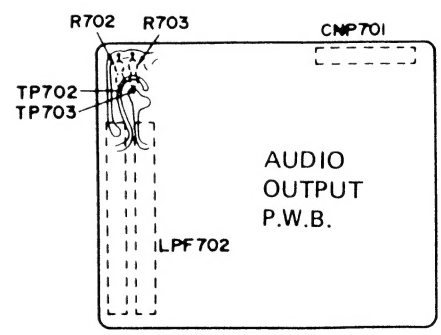
1. Effectuer le réglage alors que le pick-up est en train de tourner.
2. Brancher l'oscilloscope à 2 canaux entre TP103 (pour signal RF) situé à la plaquette de montage imprimé du dispositif servo et TP300 (pour signal VCO) situé au dispositif servo du démodulateur: maintenir TP300 déclenché extérieurement.
   Mettre la résistance variable VR301 à la position cnetrale et régler la résistance variable VR304 de sorte que les formes d'ondes de sortie du signal RF et du signal VCO soient en synchronisation.
3. Brancher l'oscilloscope à TP304 et régler la résistance variable VR304 pour obtenir la forme d'onde de sortie de +2,5V ± 0,1V.

- **Réglage de décalage VCO (VR301)**
  La tête de lecture étant en mouvement sans lire le disque, raccorder un synchroscope à TP302 et régler VR301 de telle sorte que la forme d'onde de sortie présente la même amplitude tant en sens vers le haut qu'en sens vers le bas.
  Note:
  Pour ce réglage, enfoncer la touche d'avance et la touche de retour de façon alternative de manière à ce que la tête de lecture continue à se déplacer sur le disque sans qu'il soit lu.









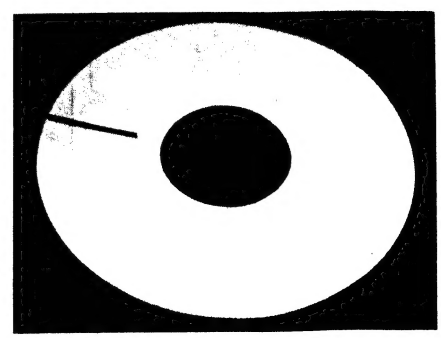


Figure 62-1 ADJUSTMENT POINT AND TEST POINT

Figure 62-2

GB

CAUTION (UK only)

If any one of the wire holders shown in Figure 63 is removed for some reason, be sure to replace it to the original position and the same appearance as before.

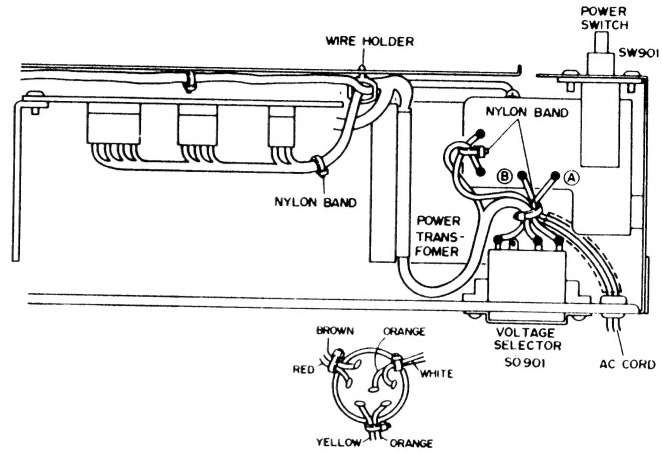
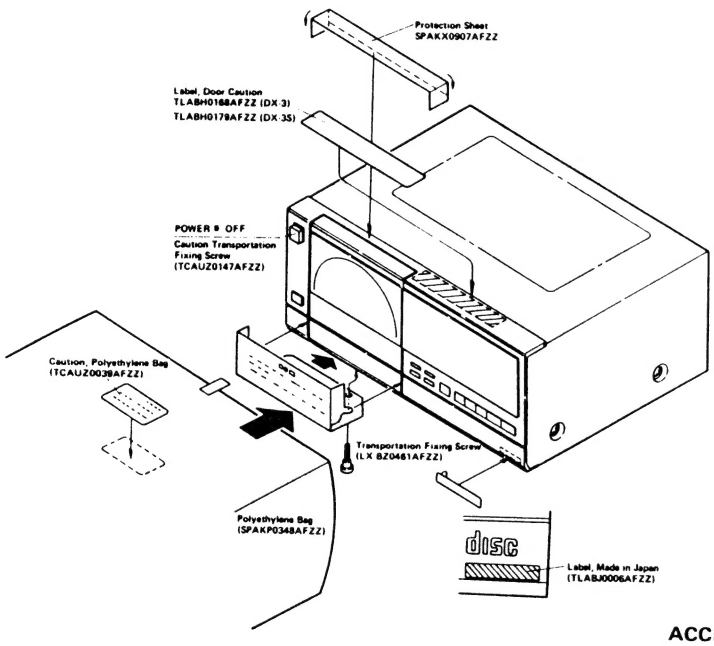


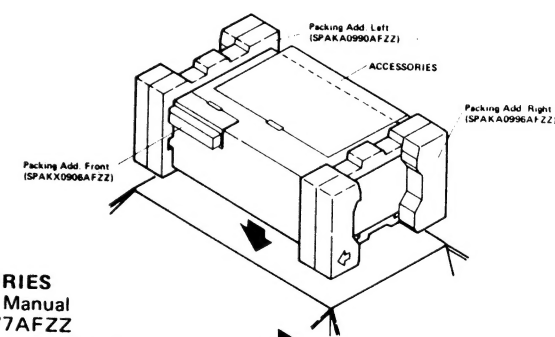
Figure 63

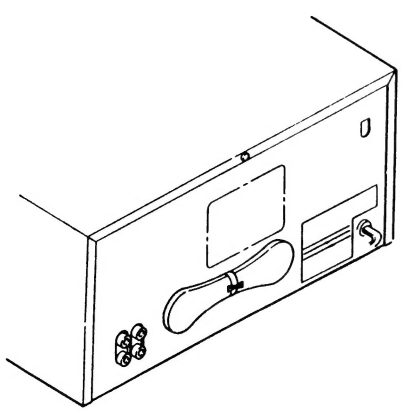
PACKING METHOD (UK only)

- **Setting positions of every switch and knob**

Power switch is set at "OFF" position.

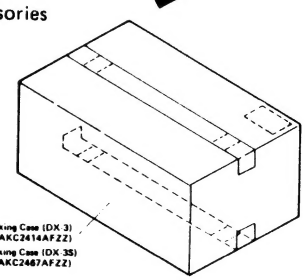






ACCESSORIES

Operation Manual
TINSZ0477AFZZ
Polyethylene Bag (Leg)
SSAKH0070AGZZ
Polyethylene Bag Accessories
SSAKA0104AFZZ
Disc cleaner cloth
Caution Leg Card
TLABZ0430AFZZ
Leg
GLEGG0069AFZZ
RCA PIN Cord
QCNW-1753AFZZ
Label
Caution, Cord
TCAUH0056AFZZ



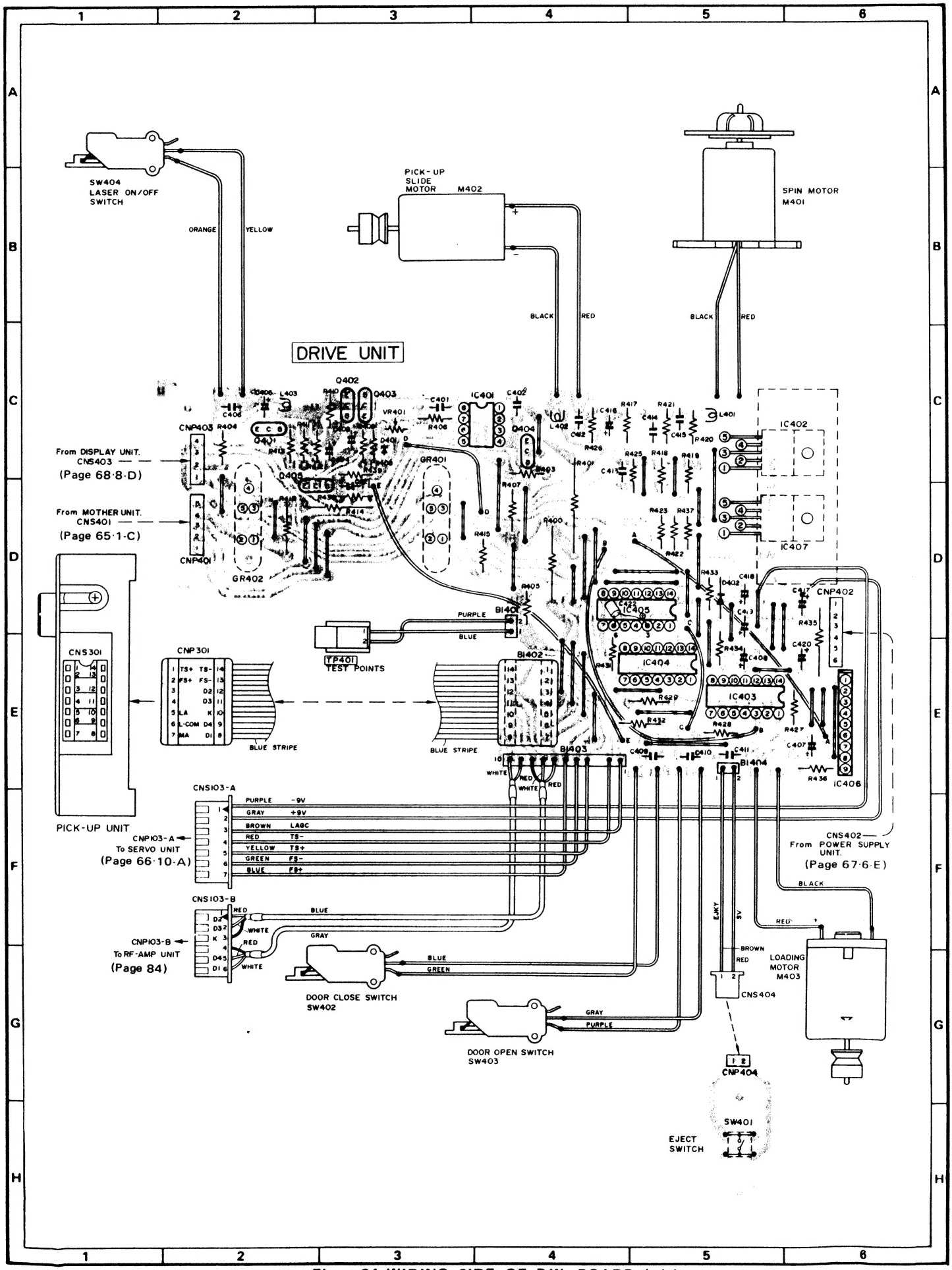


Figure 64 WIRING SIDE OF P.W. BOARD (1/4)

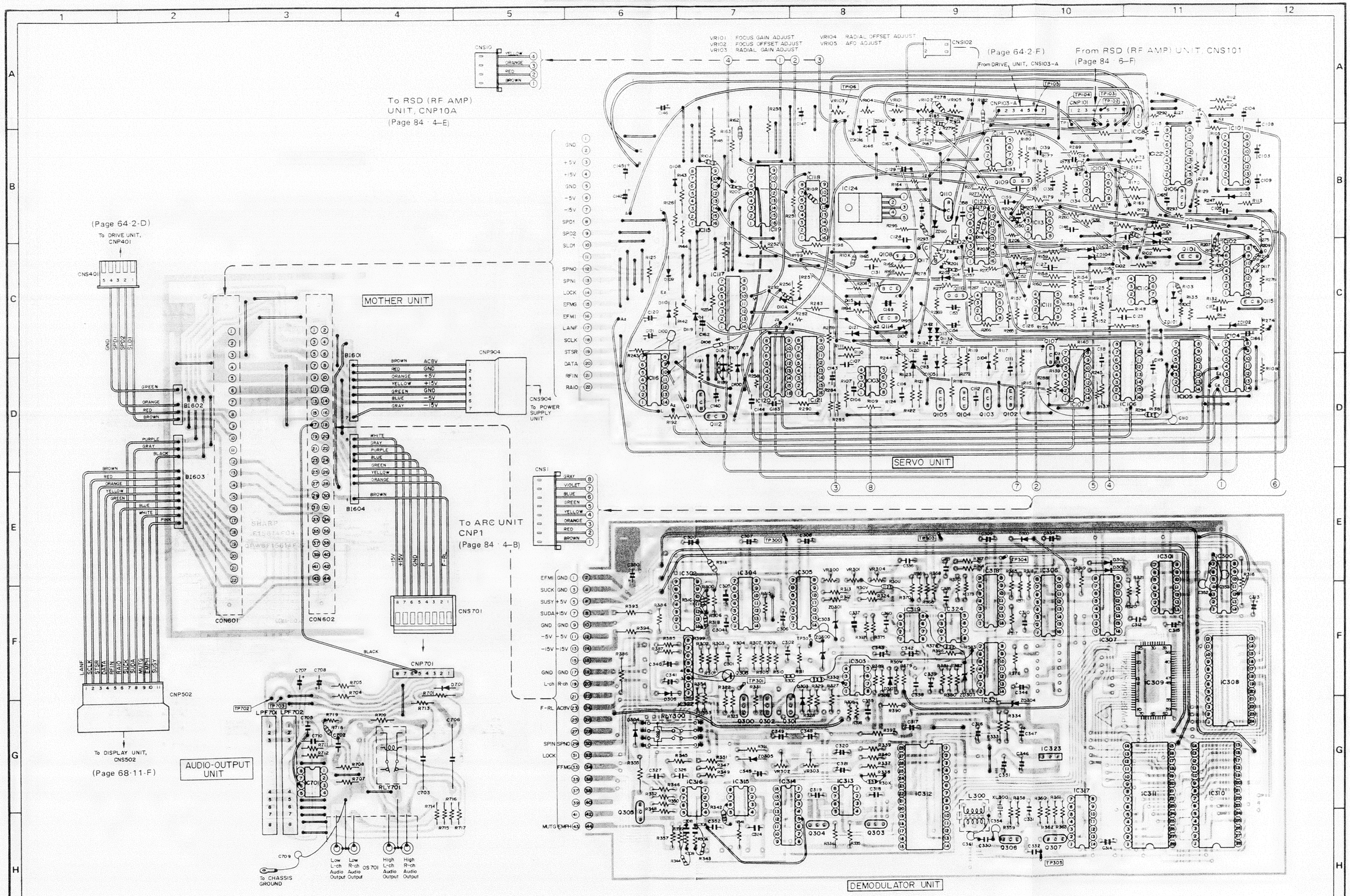


Figure 65 WIRING SIDE OF P.W. BOARD (2/4)

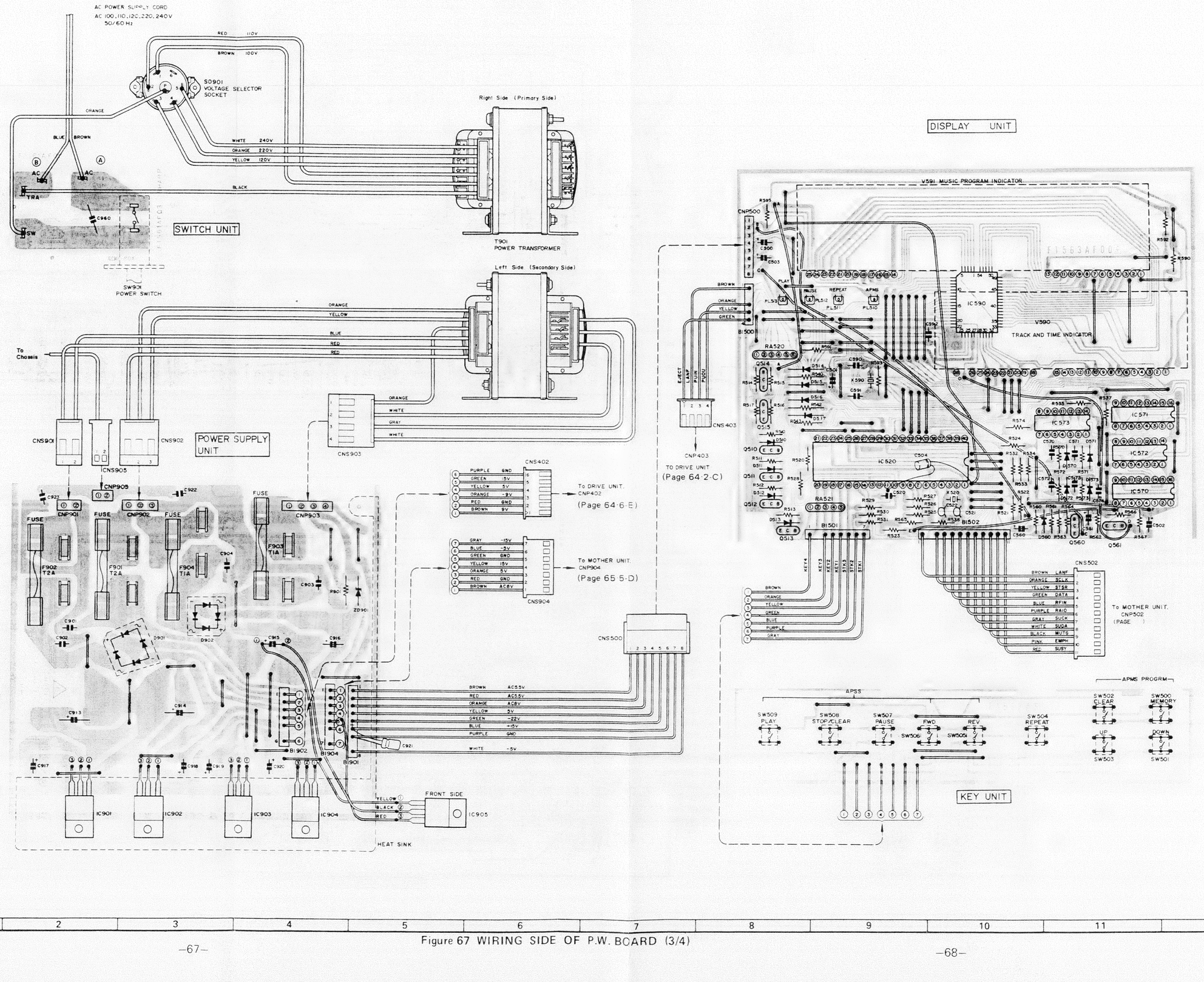


Figure 67 WIRING SIDE OF P.W. BOARD (3/4)

- The mechanical parts have super-precision structure, and avoid disassembling them unless keenly needed.
- Die mechanischen Teile haben einen Superpräzisionsaufbau. Demontage vermeiden, wenn sie nicht unbedingt nötig ist.
- Les pièces mécaniques ont une structure basée sur une superprécision: à moins d'une nécessité absolue, éviter de les démonter.

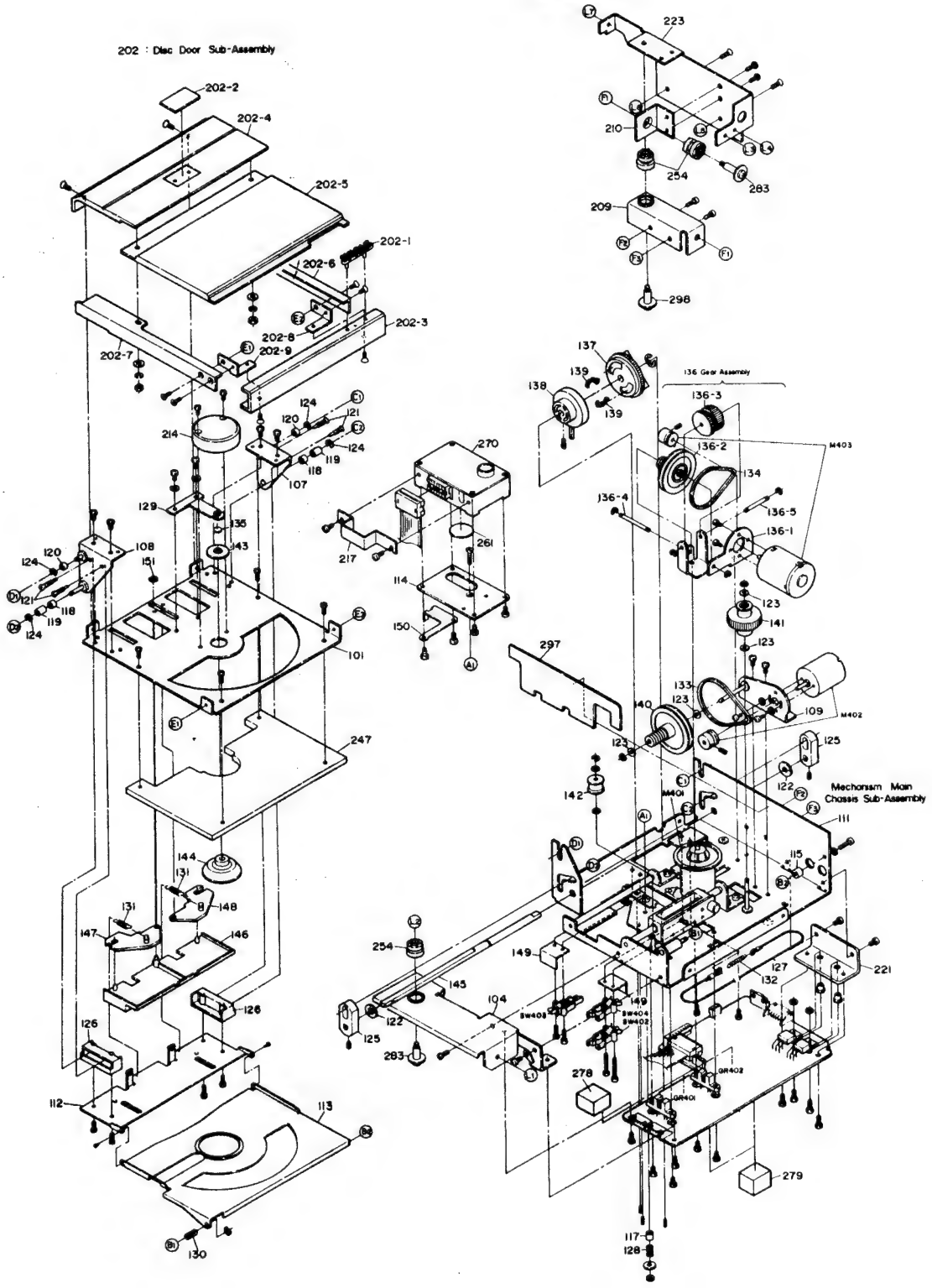


Figure 69 MECHANISM EXPLODED VIEW

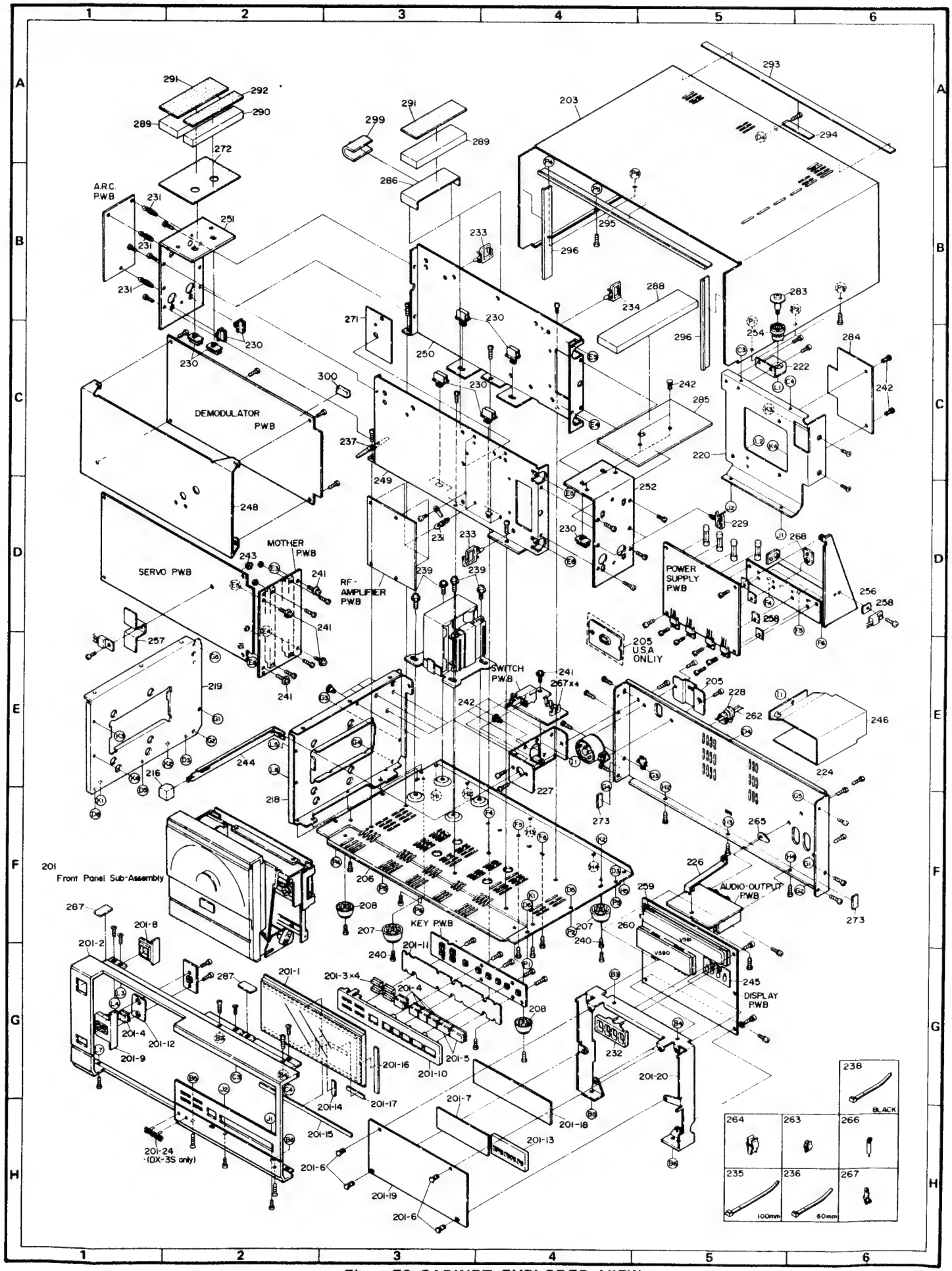


Figure 70 CABINET EXPLODED VIEW

(GB)

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

(D)

ERSATZTEILLISTE

"BESTELLEN VON ERSATZTELEN"

Um Ihren Auftrag schnell und richtig ausführen zu können, bitten wir um die folgenden Angaben.

1. MODELLNUMMER
2. REF. NR.
3. TEIL NR.
4. BESCHREIBUNG

Die mit ⚠ bezeichneten Teile sind besonders wichtig für die Aufrechterhaltung der Sicherheit. Beim Wechseln dieser Teile sollten die vorgeschriebenen Teile immer verwendet werden, um sowohl die Sicherheit als auch die Leistung des Gerätes aufrechtzuerhalten.

(F)

LISTE DES PIÈCES DE RECHANGE

"COMMENT COMMANDER DES PIÈCES DE RECHANGE"

Pour voir votre commande exécutée de manière rapide et correcte, veuillez fournir les renseignements suivants.

1. NUMÉRO DU MODÈLE
2. N° DE RÉFÉRENCE
3. N° DE LA PIÈCE
4. DESCRIPTION

Les pièces portant une marque ⚠ sont particulièrement importantes par sécurité. S'assurer de les remplacer par des pièces du numéro de pièce spécifié pour maintenir la sécurité et la performance de l'appareil.

For U.S.A. only

Contact your nearest SHARP Parts Distributor to order.

For location of SHARP Parts Distributor,
Please call Toll-Free;
800-447-4700
(In Hawaii and Alaska, please contact local SHARP dealer.)

INTEGRATED CIRCUITS

REF.NO.	PART NO.	DESCRIPTION	CODE
IC1	VHINJM4560D-1	Operation Amplifier (NJM4560D)	AH
IC2	VHI74LS74//-1	TTL, D Type Flip-Flop (74LS74)	AG
IC3	VHI74LS123/-1	TTL, Retriggerable Monostable Multivibrator (74LS123)	AL
IC101	VHITL820CN/-1	Comparator, Wave Form Shaping, Pit Detection (TL820CN)	AN
IC102	RH-IX1215AFZZ	C-MOS, Tracking Error Sampling Switch (4066B)	AH
IC103	VHINJM082D/-1	FET Input Operational Amplifier, Spin-Servo Error Amplifier, Auto-Slicing Circuit(NJM082D)	AG
IC104	RH-IX1239AFZZ	C-MOS, EFM Wave Form Shaping Buffer (Inverter) (TC40H004P)	AE
IC105	VHI74LS86//-1	TTL, 2 Input E · OR Gate, EFM Inversion Detection (74LS86)	AE
IC106	VHI74LS123/-1	TTL, Dropout Detection (74LS123)	AL
IC107	RH-IX1135AFZZ	TTL, 2 Input NAND Gate, Dropout Detection Gate (74LS00)	AE
IC108	VHIUPC78L12-1	12V Constant Voltage Regulator (μPC78L12)	AF
IC109	VHINJM4560D-1	Operational Amplifier, Focus Phase Compensator (NJM4560D)	AH
IC110	VHINJM4560D-1	Operational Amplifier, Tracking Error Amplifier, Tracking Error Phase Compensator (NJM4560D)	AH
IC111	VHINJM4560D-1	Operational Amplifier, Tracking Phase Compensastor (NJM4560D)	AH
IC112	VHINJM4560D-1	Operational Amplifier, Auto-Focus Offset Circuit (NJM4560D)	AH
IC113	VHINJM082D/-1	FET Input Operational Amplifier RF Signal Buffer, Peak Level Retention, (NJM082D)	AH
IC114	VHILM13080N-1	Operational Amplifier, Focus Coil Driver (LM13080N)	AN
IC115	RH-IX1241AFZZ	C-MOS, Spin Control Switch, Tracking Switch (4053B)	AH
IC116	RH-IX1146AFZZ	C-MOS, 2 Input NAND Gate (4011B)	AE
IC117	RH-IX1146AFZZ	C-MOS, 2 Input NAND Gate (4011B)	AE
IC118	RH-IX1241AFZZ	C-MOS, Slide Control (4053B)	AH
IC119	RH-IX1238AFZZ	C-MOS, Interface (4094B)	AP
IC120	RH-IX1240AFZZ	C-MOS, Track Jumping (μPD 4528BC)	AK

DX-3/S

REF.NO.	PART NO.	DESCRIPTION	CODE
IC123	VHI74LS123/-1	TTL, Auto-Focus Offset Slope Detection (74LS123)	AL
IC124	VHIUPC1238H-1	Tracking Driver (μPC1238H)	AK
IC201A	VHILM359N//-1	RF Amplifier (LM359N)	AQ
IC202A	VHILM359N//-1	RF, DL Amplifier (LM359N)	AQ
IC203A	VHINJM4560D-1	Operational Amplifier, Focus Error Detection, Focus Error Phase Compensator (NJM4560D)	AH
IC204A	VHINJM4560D-1	Operational Amplifier (NJM4560D)	AH
IC205A	VHINJM4560D-1	Operational Amplifier (NJM4560D)	AH
IC206A	VHINJM4560D-1	Operational Amplifier (NJM4560D)	AH
IC300	RH-IX1138AFZZ	TTL, Inverter, Signal Buffer (74LS04)	AE
IC301	VHI74LS86//-1	TTL, 2-Input OR Gate, EFM Inversion Detection (74LS86)	AE
IC302	VHI74LS74//-1	TTL, D Type Flip-Flop, Clock Sampling (74LS74)	AG
IC303	VHINJM4560D-1	Operational Amplifier, Clock Sampling, Low Pass Filter Comparator (NJM4560D)	AG
IC304	VHI74LS628/-1	TTL, VCO (Voltage Control Oscillator) (SN74LS628)	AQ
IC305	VHI74LS74//-1	TTL, D Type Flip-Flop, 1/2 Divider (74LS74)	AL
IC306	RH-IX1240AFZZ	C-MOS, PLCK Lock Detection (μPD4528BC)	AK
IC307	RH-IX1098AFZZ	C-MOS, Inverter, Lock Detecting Buffer, (4049B)	AG
IC308	VHIHM6116P-41	C-MOS, Static RAM (Random Access Memory), De-interleave (HM6116P-4)	AZ
IC309	VHICX7934//-1	N-MOS LSI, Data Control (CX-7934)	BL
IC310	VHICX7933//-1	N-MOS LSI, CD Player Demodulator (CX-7933)	BC
IC311	VHICX7935//-1	N-MOS LSI, CIRC (Cross Interleave Reed-Solomon Code) (CX-7935)	BN
IC312	VHICX20017/-1	16 Bit Digital/Analog Converter (CX-20017)	BF
IC313	VHINJM072DE-1	FET Input Operational Amplifier, Digital/Analog Current/Voltage Converter (NJM072D-E)	AH
IC314	RH-IX1241AFZZ	C-MOS, Deglitcher (4053BP)	AH
IC315	VHINJM072DE-1	Holding Circuit, Operational Amplifier (NJM072D-E)	AH
IC316	VHINJM072DE-1	Operational Amplifier, De-emphasis Circuit, (NJM072D-E)	AH
IC317	VHI74ALS74/-1	TTL, Divider (D Type Flip-Flop) (SN74ALS74)	AL
IC318	VHIMC4044P/-1	TTL, PLL Phase Detector (MC4044P)	AV
IC319	VHINJM4560D-1	Operational Amplifier, Low Pass Filter (NJM4560D)	AH
IC321	RH-IX1144AFZZ	C-MOS, 2 Input NOR Gate, Muting Gate (4001BP)	AE
IC322	VHIUPC1237H-1	Muting Quick-Break Control (μPC1237H)	AH
IC323	VHIUPC7905H-1	Stabilized Power, -5.0V DC (μPC7905H)	AL
IC324	VHINJM082D/-1	Comparator, Spin Speed-Limiting Amplifier, (NJM082D)	AG
IC401	VHINJM2904D-1	Operational Amplifier, Laser Power APC Circuit (NJM2904D)	AG
IC402	VHIUPC1238H-1	Spin Motor Driver (μPC1238H)	AK
IC403	RH-IX1155AFZZ	C-MOS, 2 Input OR Gate, Eject (4071B)	AU
IC404	RH-IX1146AFZZ	C-MOS, 2 Input NAND Gate, Eject (4011B)	AE
IC405	RH-IX1148AFZZ	C-MOS, D Type Flip-Flop, Eject (4013B)	AE
IC406	VHIM54545L/-1	Door Open/Close Motor Drive, Disc-Loading (M54545L)	AM
IC407	VHIUPC1238H-1	Slide Motor Driver (μPC1238H)	AK
IC520	VHILH080102-1	8-Bit MCU (Micro Computer Unit), System Control (LH0801)	BA
IC570	RH-IX1175AFZZ	C-MOS, Display Counter (4017B)	AQ
IC571	RH-IX1242AFZZ	C-MOS, D Type Flip-Flop, Display Latch (TC40175BP)	AL
IC572	RH-IX1144AFZZ	C-MOS, 2 Input NOR Gate, Display Gate (4001BP)	AE
IC573	RH-IX1145AFZZ	C-MOS, 4 Input NOR Gate, Display Gate (TC4002BP)	AE
IC590	RH-IX1236AFZZ	P-MOS, 4-Bit 1 Chip Micro-computer, Display	AX
IC121	RH-IX1241AFZZ	C-MOS, Track Jumping Switch (4053B)	AH
IC122	VHI74LS123/-1	TTL, Tracking Error Sampling Timing (74LS123)	AL
IC701	VHILM833N//-1	Low Noise Operational Amplifier, Low Frequency Amplifier (LM833N)	AH
IC901	VHIUPC7805H-1	+5.0V, Constant Voltage Regulator (μPC7805H)	AH
IC902	VHIUPC7905H-1	-5.0V, Constant Voltage Regulator (μPC7905H)	AL
IC903	VHIUPC7815H-1	+15V, Constant Voltage Regulator (μPC7815H)	AH
IC904	VHIUPC7915H-1	-15V, Constant Voltage Regulator (μPC7915H)	AL
IC905	VHIUPC7815H-1	+15V, Constant Voltage Regulator (μPC7815H)	AH

TRANSISTORS/FETs

Q1	VS2SA1015GR-1	ARC Circuit (2SA1015 GR)	AB
Q2	VS2SC1815GR-1	ARC Circuit (2SC1815 GR)	AB
Q3	VS2SC1815GR-1	ARC Circuit (2SC1815 GR)	AB
Q4	VS2SC1815GR-1	ARC Circuit (2SC1815 GR)	AB
Q101	VS2SC1815GR-1	Laser Power AGC Control (2SC1815 GR)	AB
Q102	VS2SC1815GR-1	Switch,Spin Servo Saw-tooth Wave Generator (2SC1815 GR)	AB
Q103	VS2SC1815GR-1	Sawtooth Wave Buffer (2SC1815 GR)	AB
Q104	VS2SA1015GR-1	Spin Servo Reversing Prevention (2SA1015 GR)	AB
Q105	VS2SC1815GR-1	Spin Servo Buffer (2SC1815 GR)	AB
Q106	VS2SA1015GR-1	IC102 (Analog Switch) Control Level Shifter (2SA1015 GR)	AB

REF.NO.	PART NO.	DESCRIPTION	CODE
Q107	VS2SC1815GR-1	Spin Servo, Slide Servo Control Buffer (2SC1815 GR)	AB
Q108	VS2SK30AGR/-1	FET, Tracking Servo Gain Changeover Switch (2SK30A GR)	AD
Q109	VS2SK30AGR/-1	FET, Focus Servo ON/OFF Changeover (2SK30A GR)	AD
Q110	VS2SD468-C/-1	Servo Unit (2SD468 C)	AD
Q111	VS2SC1815GR-1	Focus Servo Quick-Break Control (2SC1815 GR)	AB
Q112	VS2SA1015GR-1	Level Shifter, Focus Servo Quick-Break Control (2SA1015 GR)	AB
Q113	VS2SC1815GR-1	Tracking Gain UP/DOWN Switch Control (2SC1815 GR)	AB
Q114	VS2SA1015GR-1	Level Shifter, Tracking Gain UP/DOWN Control (2SA1015 GR)	AB
Q115	VS2SA1015GR-1	Level Shifter, Auto-Focus Offset Detection Switch (2SA1015 GR)	AB
Q116	VS2SK30AGR/-1	FET, Auto-Focus Offset ON/OFF (2SK30A GR)	AD
Q117	VS2SA1015GR-1	Switching (2SA1015 GR)	AB
Q201A	VS2SC1815GR-1	B.S. Protection Circuit (2SC1815 GR)	AB
Q202A	VS2SC1815GR-1	B.S. Protection Circuit (2SC1815 GR)	AB
Q203A	VS2SA1015GR-1	B.S. Protection Circuit (2SA1015 GR)	AB
Q204A	VS2SA1015GR-1	B.S. Protection Circuit (2SA1015 GR)	AB
Q205A	VS2SA1015GR-1	B.S. Protection Circuit (2SA1015 GR)	AB
Q206A	VS2SC1815GR-1	B.S. Protection Circuit (2SC1815 GR)	AB
Q207A	VS2SK30AGR/-1	B.S. Protection Circuit (2SK30A GR)	AD
Q208A	VS2SK30AGR/-1	B.S. Protection Circuit (2SK30A GR)	AD
Q209A	VS2SK30AGR/-1	B.S. Protection Circuit (2SK30A GR)	AD
Q210A	VS2SC1815GR-1	B.S. Protection Circuit (2SC1815 GR)	AB
Q300	VS2SA1015GR-1	Level Shifter (2SA1015 GR)	AB
Q301	VS2SK30AGR/-1	FET, Analog Switch (2SK30A GR)	AD
Q302	VS2SC1815GR-1	Analog Switch Driver (2SC1815 GR)	AB
Q303,304	VS2SK152///-1	FET, Capacitor Discharge (2SK152-3 or 4)	AG
Q305	VS2SC1815GR-1	Relay Driver (2SC1815 GR)	AB
Q306	VS2SC1923O/-1	34.5744MHz Oscillation (2SC1923 O)	AB
Q307	VS2SC1923O/-1	Divider Driver (2SC1923 O)	AB
Q308	VS2SC945AP/-1	Muting (2SC945 AP)	AB
Q401	VS2SC1815GR-1	Switching (2SC1815 GR)	AB
Q402	VS2SC1815GR-1	Power Filter (2SC1815 GR)	AB
Q403	VS2SC2120-Y-1	Power Filter (2SC2120 Y)	AC
Q404	VS2SC2120-Y-1	Laser Driver (2SC2120 Y)	AC
Q405	VS2SC1815GR-1	Laser APC (Automatic Power Control) (2SC1815 GR)	CB
Q510,511 Q512,513	VS2SC2120-Y-1	Lamp Driver (2SC2120 Y)	AC
Q514	VS2SA950-Y/-1	Lamp Driver (2SA950 Y)	AC
Q515	VS2SC1815GR-1	Lamp Driver (2SC1815 GR)	AB
Q560,561	VS2SC1815GR-1	Microcomputer Reset (2SC1815 GR)	AB

DIODES/LEDs

REF.NO.	PART NO.	DESCRIPTION	CODE
D1	VHD1SS176//-1	ARC Circuit (1SS176)	AA
D2	VHD1SS176//-1	ARC Circuit (1SS176)	AA
D3	VHD1SS176//-1	ARC Circuit (1SS176)	AA
D10A,10C D10D	VHD1SS176//-1	Servo Unit (1SS176)	AA
D101,102	VHD1SS176//-1	RF Signal Detection (1SS176)	AA
D103	VHD1SS176//-1	Level Shifter, Comparator C-MOS IC (1SS176)	AA
D104	VHD1SS176//-1	Peak Detection, Spin Servo Error Detection (1SS176)	AA
D105	VHD1SS176//-1	Servo Unit (1SS176)	AA
D108	VHD1SS176//-1	Overvoltage Protection, C-MOS Analog Switch (1SS176)	AA
D109	VHD1SS176//-1	Spin Servo Starting - Servo Changeover (1SS176)	AA
D110	VHD1SS176//-1	Slide Servo Control (1SS176)	AA
D111	VHD1SS176//-1	Auto-Focus	AA
D112,113 D112A,113A	VHD1SS176//-1	Auto-Focus Level Slicer (1SS176)	AA
D114,115, D116,117	VHD1SS176//-1	Auto-Focus Gain Control Signal (1SS176)	AA
D119	VHD1SS176//-1	Tracking Servo Delay Circuit (1SS176)	AA
D120,121	VHD1SS176//-1	Servo Unit (1SS176)	AA
D201A,202A, D203A,204A, D205A,206A, D207A,208A, D209A,210A	VHD1SS176//-1	B.S. Protection Circuit (1SS176)	AA
D130	VHD1SS176//-1	Servo Unit (1SS176)	AA
D300	VHD1SS176//-1	Reverse Current Prevention (1SS176)	AA
D301,302	VHD1SS176//-1	OR Circuit (1SS176)	AA
D303	VHD1SS176//-1	Reverse Current Prevention (1SS176)	AA
D304	VHD1SS176//-1	Surge Absorber (1SS176)	AA
D306	VHD1SS176//-1	Clamper (1SS176)	AA
D307	VHD1SS176//-1	Muting (1SS176)	AA
D402	VHD1SS176//-1	Reverse Current Prevention (1SS176)	AA
D510,511, D512,513, D514,515, D516,517	VHD1SS176//-1	Reverse Current Prevention (1SS176)	AA
D560	VHD1SS176//-1	Rectifier (1SS176)	AA
D570,571 D572,573	VHD1SS176//-1	Protection, IC573 (1SS176)	AA
D701	VHD1SS176//-1	Surge Absorber (1SS176)	AA
D901	VHDDBA40C15-1	Bridge Rectifier (DBA40C-K15)	AH
D902	VHDDBA20C15-1	Bridge Rectifier (DBA20C-K15)	AG
ZD1	VHERD5R1JB2-1	Zener (RD5.1JB2)	AB
ZD101	VHERD5R1JB2-1	Zener, Clamper (RD5.1JB2)	AB
ZD102	VHERD6R8JB2-1	Zener, Constant Voltage Regulator (RD6.8JB2)	AB
ZD103,104	VHERD3R9EB2-1	Zener, Clamper (RD3.9EB2)	AB
ZD106,107	VHERD5R1JB2-1	Zener (RD5.1JB2)	AB
ZD110	VHERD120JB2-1	Zener, Servo Unit (RD12JB2)	AC
ZD201A	VHERD5R1JB2-1	Zener (RD5.1JB2)	AB
ZD202A	VHERD5R1JB2-1	Zener (RD5.1JB2)	AB
ZD203A	VHERD5R1JB2-1	Zener (RD5.1JB2)	AB
ZD300,301, ZD303	VHERD5R1JB1-1	Zener, Overvoltage Prevention (RD5.1JB1)	AB
ZD304,305	VHERD120JB2-1	Zener, Constant Voltage Regulator (RD12JB2)	AB
ZD401	VHERD5R1JB1-1	Zener (RD5.1JB1)	AB

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REF.NO.	PART NO.	DESCRIPTION	CODE
ZD901	VHERD5R1JB1-1	Zener, Level Shifter (RD5.1JB1)	AB
		PHOTOINTERRUPTER	
GR401,402	VHPGP1A04//-1	Pick-up Position Sensor (GP-1A04)	AL
		COILS	
L300	RCILB0673AFZZ	Oscillation	AD
L401,402	RCILZ0132AFZZ	1mH, Oscillation Prevention	AC
L403	RCILZ0132AFZZ	1mH, Oscillation Prevention	AC
		FILTERS	
LPF701	RFILL0073AFZZ	Low Pass Filter, 20kHz	BA
LPF702	RFILL0073AFZZ	Low Pass Filter, 20kHz	BA
		TRANSFORMERS	
△ T901	RTRNP0911AFZZ	Power	BA
		OSCILLATION ELEMENT	
XL300	RCRSB0076AFZZ	Crystal, 34.5744MHz	AK
X520	RCRSB0077AFZZ	Crystal; 8.000MHz	AL
X590	RFILA0100AFZZ	Ceramic, 440kHz	AE
		VARIABLE RESISTORS	
VR1	RVR-M0419AFZZ	10k ohm (B), ARC Adjustment	AD
VR101	RVR-M0417AFZZ	2.2k ohm (B), Focus Gain Adjustment	AD
VR102	RVR-M0419AFZZ	10k ohm (B), Focus Offset Adjustment	AD
VR103	RVR-M0417AFZZ	2.2k ohm (B), Tracking Gain Adjustment	AD
VR104	RVR-M0419AFZZ	10k ohm (B), Tracking Offset Adjustment	AD
VR105	RVR-M0417AFZZ	2.2k ohm (B), AFO Adjustment	AD
VR201A	RVR-M0419AFZZ	10k ohm (B), Tracking Balance Adjustment	AD
VR202A	RVR-M0419AFZZ	10k ohm (B), Focus Balance Adjustment	AD
VR203A	RVR-M0436AFZZ	100k ohm (B), P.U. Temperature Compensation Adjustment	AD
VR204A	RVR-M0417AFZZ	2.2k ohm (B), RF Gain Adjustment	AD
VR300	RVR-M0418AFZZ	4.7k ohm (B), VCO Free Run Adjustment	AD
VR301	RVR-M0418AFZZ	4.7k ohm (B), VCO Offset Adjustment	AD
VR302	RVR-M0420AFZZ	47k ohm (B), 44.1kHz Cancel	AD
VR303	RVR-M0420AFZZ	47k ohm (B), 44.1kHz Cancel	AD
VR304	RVR-M0418AFZZ	4.7k ohm (B), Spin Offset Adjustment	AD
VR401	RVR-M0419AFZZ	10k ohm (B), Laser Current Adjustment	AD

ELECTROLYTIC CAPACITORS

(Unless otherwise specified, electrolytic capacitors are ±20% type.)

C1	RC-EZS335AF1H	3.3MFD, 50V	AB
C2	RC-EZS335AF1H	3.3MFD, 50V	AB
C3	RC-EZS335AF1H	3.3MFD, 50V	AB
C6	RC-EZS336AF1C	33MFD, 16V	AB
C8	RC-EZS335AF1H	3.3MFD, 50V	AB
C9	RC-EZS476AF1C	47MFD, 16V	AB
C10	RC-EZS476AF1C	47MFD, 16V	AB
C102	VCE9AU1HF105M	1MFD, 50V, ±20%	AB
C103	RC-EZA335AF1H	3.3MFD, 50V	AB
C109	RC-EZA336AF1C	33MFD, 16V	AB
C113	RC-EZA475AF1H	4.7MFD, 50V	AB
C116	RC-SZ1022AFZZ	3.3MFD, 10V, ±20%, Tantalum	AB
C120,121	RC-EZA336AF1C	33MFD, 16V	AB
C129	RC-EZA476AF1C	47MFD, 16V	AB
C130	RC-EZA476AF1C	47MFD, 16V	AB
C140	RC-EZA106AF1C	10MFD, 16V	AB
C142	RC-EZA107AF1C	100MFD, 16V	AB
C143	RC-EZA105AF1H	1MFD, 50V	AB
C145	RC-EZV107AF1C	100MFD, 16V	AB
C146,147	RC-EZA107AF1A	100MFD, 10V	AB
C153,154	RC-EZA106AF1C	10MFD, 16V	AB
C161	RC-EZA105AF1H	1MFD, 50V	AB
C162	RC-EZS105AF1H	1MFD, 50V	AB
C163	RC-EZA224AF1H	2.2MFD, 50V	AB
C164	RC-EZV106AF1H	10MFD, 50V	AB
C168	RC-SZ1022AFZZ	3.3MFD, 10V, ±20%, Tantalum	AB
C169	RC-EZV475AF1H	4.7MFD, 50V	AB
C181,182, R203A	RC-EZS106AF1C	10MFD, 16V	AB
C202A, C204A,205A, C206A	RC-EZV106AF1C	10MFD, 16V	AB
C208A	RC-EZV335AF1H	3.3MFD, 50V	AB
C210A,211A	RC-EZV336AF1C	33MFD, 16V	AB
C215A	VCEALU1CC226M	22MFD, 16V	AB
C217A	RC-EZV476AF1C	47MFD, 16V	AB
C218A	RC-EZV335AF1H	3.3MFD, 50V	AB
C219A	RC-EZV336AF1C	33MFD, 16V	AB
C221A	RC-EZV336AF1C	33MFD, 16V	AB
C227A	RC-EZV105AF1H	1MFD, 50V	AB
C231A	RC-EZV335AF1H	3.3MFD, 50V	AB
C232A,233A	RC-EZV106AF1C	10MFD, 16V	AB
C234A,235A	RC-EZV335AF1H	3.3MFD, 50V	AB
R236A	VCE9AU1CF106M	10MFD, 16V	
C300	RC-SZ1022AFZZ	3.3MFD, 10V, ±20%, Tantalum	AB
C306,307 C308,309 C313,314 C315	RC-SZ1022AFZZ	3.3MFD, 10V, ±20%, Tantalum	AB
C316	RC-EZA106AF1H	10MFD, 50V	AB
C317	RC-EZA336AF1C	33MFD, 16V	AB
C320,321	RC-EZA336AF1C	33MFD, 16V	AB
C339	RC-EZA336AF1C	33MFD, 16V	AB
C340	RC-EZA105AF1H	1MFD, 50V	AB
C341	RC-EZA335AF1H	3.3MFD, 50V	AB
C342,343, C344,345, C346,347, C348,349	RC-EZA336AF1C	33MFD, 16V	AB
C350	RC-EZV227AF1C	220MFD, 16V	AB
C351	RC-EZA336AF1C	33MFD, 16V	AB
C403	RC-EZB105AF1H	1MFD, 50V	AB
C404	RC-EZB226AF1C	22MFD, 16V	AC
C405	RC-EZB335AF1E	3.3MFD, 25V	AB
C407	RC-EZB226AF1C	22MFD, 16V	AC
C408	RC-EZB335AF1E	3.3MFD, 25V	AB
C416	RC-EZB336AF1A	33MFD, 10V	AB
C417	RC-EZB226AF1C	22MFD, 16V	AC
C418	RC-EZB226AF1C	22MFD, 16V	AC
C419	RC-EZB106AF1C	10MFD, 16V	AB
C420	RC-EZB106AF1C	10MFD, 16V	AB
C421	RC-EZB336AF1A	33MFD, 10V	AB
C422	RC-EZB335AF1E	3.3MFD 50V	AB
C500,501, C502,503	RC-EZV106AF1H	10MFD, 50V	AB

REF.NO.	PART NO.	DESCRIPTION	CODE
C504	RC-EZS105AF1H	1MFD, 50V	AB
C560	RC-EZV106AF1H	10MFD, 50V	AB
C561	RC-EZV106AF1H	10MFD, 50V	AB
C707	RC-EZV336AF1C	33MFD, 16V	AB
C708	RC-EZV336AF1C	33MFD, 16V	AB
C913	RC-EZ1221AFZZ	10000MFD, 16V, +30-10%	AN
C914	RC-EZ1222AFZZ	4700MFD, 16V, +30-10%	AK
C915	RC-EZW228AF1V	2200MFD, 35V	AC
C916	RC-EZW108AF1V	1000MFD, 35V	AF
C917	RC-EZV106AF1H	10MFD, 50V	AB
C918	RC-EZV106AF1H	10MFD, 50V	AB
C919	RC-EZV106AF1H	10MFD, 50V	AB
C920	RC-EZV106AF1H	10MFD, 50V	AB
C921	RC-EZV106AF1H	10MFD, 50V	AB

CAPACITORS

C4	VCQYKU1HM472J	0.0047MFD, 50V, ±5%, Mylar	AA
C7	VCQYKU1HM472J	0.0047MFD, 50V, ±5%, Mylar	AA
C10D	VCQYKU1HM473J	0.047MFD, 50V, ±5%, Mylar	AA
C11	VCQYKU1HM333J	0.033MFD, 50V, ±5%, Mylar	AA
C101	VCTYPA1EX472J	0.0047MFD, 25V, ±5%, Semiconductor	AA
C104	VCTYPA1EX222K	0.0022MFD, 25V, ±10%, Semiconductor	AA
C105	VCKZPA1HF223Z	0.022MFD, 50V, +80-20%, Ceramic	AA
C106	VCTYPU1EX104K	0.1MFD, 25V, ±10%, Semiconductor	AB
C107	VCKZPA1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C108	VCCSPU1HL151J	150PF, 50V,±5%, Ceramic	AA
C110	VCCSPU1HL220J	22pF, 50V, ±5%, Ceramic	AA
C111	VCQSMA1HL471G	470pF, 50V, ±2% Styrol	AB
C112	VCTYPU1EX104K	0.1MFD, 25V, ±10%, Semiconductor	AB
C114	VCKZPA1HF473Z	0.047MFD, 50V, +80-20%, Ceramic	AA
C115	VCCSPA1HL220J	22pF, 50V, ±5%, Ceramic	AA
C117	VCTYPA1EX472J	0.0047MFD, 25V, ±5%, Semiconductor	AA
C118,119	VCQYKA1HM182J	0.0018MFD, 50V, ±5%, Mylar	AB
C123	VCQYKA1HM473J	0.047MFD, 50V, ±5%, Mylar	AB
C124	VCQYKA1HM562J	0.0056MFD, 50V, ±5%, Mylar	AB
C125	VCCSPA1HL101J	100pF, 50V, ±5%, Ceramic	AA
C126	VCQYKA1HM223J	0.022MFD, 50V, ±5%, Mylar	AB
C127	VCQYKA1HM473J	0.047MFD, 50V, ±5%, Mylar	AB
C128	VCCSPA1HL221J	220pF, 50V, ±5%, Ceramic	AA
C131	VCKZPA1HF223Z	0.022MFD, 50V, +80-20%, Ceramic	AA
C133	VCQYKA1HM123J	0.012MFD, 50V, ±5%, Mylar	AB
C134	VCQYKA1HM473J	0.047MFD, 50V, ±5%, Mylar	AB
C135	VCQYKA1HM102J	0.001MFD, 50V, ±5%, Mylar	AB
C136	VCCSPA1HL101J	100pF, 50V, ±5%, Ceramic	AA
C139	VCKZPA1HF223Z	0.022MFD, 50V, +80-20%, Ceramic	AA
C144	VCQYKA1HM473J	0.047MFD, 50V, ±5%, Mylar	AB
C148	VCQYKU1HM103K	0.01MFD, 50V,±10%, Ceramic	AA
C150,152	VCQYKU1HM472J	0.0047MFD, 50V,±5%, Ceramic	AB
C157	VCCSPA1HL560J	56pF, 50V, ±5%, Ceramic	AA
C158	VCCSPU1HL270J	27pF, 50V,±5%, Ceramic	AA
C159	VCCSPA1HL101J	100pF, 50V, ±5%, Ceramic	AA
C164	VCKZPA1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C165	VCQYKA1HM683J	0.068MFD, 50V, ±5%, Mylar	AB
C167	VCKZPA1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C170	VCCSPU1HL271J	270pF, 50V,±5%, Ceramic	AA

REF. NO.	PART NO.	DESCRIPTION	CODE
C201A	VCKZPV1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C207A	VCCSPU1HL3R0C	3pF, 50V, ±0.25pF, Ceramic	AA
C209A	VCCSPU1HL3R0C	3pF, 50V, ±0.25pF, Ceramic	AA
C212A	VCQYKU1HM472J	0.0047MFD, 50V, ±5%, Mylar	AB
C213A	VCQYKV1HM683J	0.068MFD, 50V, ±5%, Mylar	AC
C214A	VCCSPU1HL3R0C	3pF, 50V, ±0.25pF, Ceramic	AA
C216A	VCKZPV1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C220A	VCCSPU1HL3R0C	3pF, 50V, ±0.25pF, Ceramic	AA
C222A,223A	VCCSPU1HL680J	68pF, 50V, ±5% Ceramic	AA
C224A,225A	VCKZPV1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C226A	VCQYKU1HM472J	0.0047MFD, 50V, ±5%, Mylar	AB
C228A	VCCSPU1HL271J	270pF, 50V, ±5%, Ceramic	AA
C229A	VCQYKU1HM472J	0.0047MFD, 50V, ±5%, Mylar	AB
C230A	VCCSPU1HL271J	270pF, 50V, ±5%, Ceramic	AA
C301,302	VCQYKA1HM153K	0.015MFD, 50V, ±10%, Mylar	AA
C303	VCCSPA1HL471J	470pF, 50V, ±5%, Ceramic	AA
C304	VCKZPA1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C305	VCCUPU1HJ330J	33pF(UJ), 50V, ±5%, Ceramic	AA
C310	RC-QZA104AFYK	0.1MFD, 50V, ±5%, Mylar	AB
C312	VCQYKA1HM562K	0.0056MFD, 50V, ±10%, Mylar	AA
C318,319	VCQSMA2ES202G	2000pF, 250V, ±2%, Styrol	AD
C323	RC-QZA104AFYK	0.1MFD, 50V, ±5%, Mylar	AB
C324,325	VCQSMA2ES221J	220pF, 250V, ±5%, Styrol	AB
C326,327	VCQSMA1HL103G	10000pF, 50V, ±2%, Styrol	AD
C330	VCCSPA1HL560J	56pF, 50V, ±5%, Ceramic	AA
C331	VCCSPA1HL181J	180pF, 50V, ±5%, Ceramic	AA
C332	VCCSPA1HL470J	47pF, 50V, ±5%, Ceramic	AA
C335	VCQYKA1HM153K	0.015MFD, 50V, ±10%, Mylar	AA
C336	VCKZPA1HF473Z	0.047MFD, 50V, +80-20%, Ceramic	AA
C337	VCKYPA1HB821K	820pF, 50V, ±10%, Ceramic	AA
C338	RC-QZA104AFYK	0.1MFD, 50V, ±5%, Mylar	AB
C352,353	VCCSPU1HL101J	100pF, 50V, ±5%, Ceramic	AA
C354	VCCSPU1HL3R0C	3pF, 50V, ±0.25pF, Ceramic	AA
C355	RC-QZA104AFYK	0.1MFD, 50V, ±5%, Mylar	AB
C360	RC-QZA104AFYK	0.1MFD, 50V, ±5%, Mylar	AB
C361	VCKZPU1HF223Z	0.022MFD, 50V, +80-20%, Ceramic	AA
C30A,30B	VCKYAT1HB471K	470pF, 50V, ±10%, Ceramic	AA
C401	VCKZPU1HF473Z	0.047MFD, 50V, +80-20%, Ceramic	AA
C402	VCKZPU1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C406	VCKZPU1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C409	VCKZPU1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C410	VCKZPU1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C411	VCKZPU1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C412	VCKZPU1HF223Z	0.022MFD, 50V, +80-20%, Ceramic	AA
C413	VCTYPU1EX104K	0.1MFD, 25V, ±10%, Semiconductor	AB
C414	VCKZPU1HF223Z	0.022MFD, 50V, +80-20%, Ceramic	AA
C415	VCCSPU1HL101J	100pF, 50V, ±5%, Ceramic	AA
C520	VCKZPU1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C521	VCCSPU1HL5R0D	5pF, 50V, ±0.5pF, Ceramic	AA
C522	VCCSPU1HL5R0D	5pF, 50V, ±0.5pF, Ceramic	AA
C570,571, C572,573	VCKYPU1HB681K	680pF, 50V, ±10%, Ceramic	AA

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REF.NO.	PART NO.	DESCRIPTION	CODE
C574	VCKZPU1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C590	VCCSPU1HL151J	150pF, 50V, ±5%, Ceramic	AA
C591	VCCSPU1HL151J	150pF, 50V, ±5%, Ceramic	AA
C592	VCKZPU1HF103Z	0.01MFD, 50V, +80-20%, Ceramic	AA
C702	VCCSPU1HL101J	100PF, 50V, ±5%, Ceramic Ceramic	AA
C703	RC-FZ1030AFZZ	4.7MFD, 100V, Polyester Film	AH
C705	VCCSPU1HL101J	100pF, 50V, ±5%, Ceramic	AA
C706	RC-FZ1030AFZZ	4.7MFD, 100V, Polyester Film	AH
C709,923 C922	VCKZPU1HF104Z	0.1MFD, 50V, +80-20%, Ceramic	AB
C710	VCCSPU1HLR50C	0.5pF, 50V, ±0.25pF, Ceramic	AA
C901,902	VCQYKU1HM104M	0.1MFD, 50V, ±20%, Mylar	AC
C903,904	VCQYKU1HM104M	0.1MFD, 50V, ±20%, Mylar	AC
⚠ C960	RC-KZ1013AFZZ	0.01MFD, 400V, +100-0%, Ceramic	AD

RESISTORS

(Unless otherwise specified, resistors are 1/6W, ±5%, carbon type.)

R1	VRD-ST2EE822J	8.2K ohm, 1/4W, ±5%, Carbon	AA
R3	VRD-ST2BB222J	2.2K ohm, 1/8W, ±5%, Carbon	AA
R4	VRD-ST2BB474J	470K ohm, 1/8W, ±5%, Carbon	AA
R5	VRD-ST2BB103J	10K ohm, 1/8W, ±5%, Carbon	AA
R6	VRD-ST2BB562J	5.6K ohm, 1/8W, ±5%, Carbon	AA
R7	VRD-ST2BB103J	10K ohm, 1/8W, ±5%, Carbon	AA
R8	VRD-ST2EE123J	12K ohm, 1/4W, ±5%, Carbon	AA
R9	VRD-ST2BB105J	1Meg ohm, 1/8W, ±5%, Carbon	AA
R10	VRD-ST2BB333J	33K ohm, 1/8W, ±5%, Carbon	AA
R11	VRD-ST2BB123J	12K ohm, 1/8W, ±5%, Carbon	AA
R12	VRD-ST2BB122J	1.2K ohm, 1/8W, ±5%, Carbon	AA
R14	VRD-ST2EE124J	120K ohm, 1/4W, ±5%, Carbon	AA
R15	VRD-ST2BB122J	1.2K ohm, 1/8W, ±5%, Carbon	AA
R16	VRD-ST2BB123J	12K ohm, 1/8W, ±5%, Carbon	AA
R17,18	VRG-ST2ED4R7J	4.7 ohm, 1/4W, ±5%, Fusible	AA
R101	VRD-ST2CD152J	1.5K ohm	AA
R102	VRD-ST2CD562J	5.6K ohm	AA
R103	VRD-ST2BB471J	470 ohm, 1/8W, ±5%, Carbon	AA
R104	VRD-ST2CD102J	1K ohm	AA
R105	VRD-ST2CD273J	27K ohm	AA
R106	VRD-ST2CD471J	470 ohm	AA
R107	VRD-ST2CD105J	1Meg ohm	AA
R108	VRD-ST2CD103J	10K ohm	AA
R109	VRD-ST2CD153J	15K ohm	AA
R110	VRD-ST2CD222J	2.2K ohm	AA
R111	VRD-ST2CD222J	2.2K ohm	AA
R112	VRD-ST2CD101J	100 ohm	AA
R113	VRD-ST2CD122J	1.2K ohm	AA
R114	VRD-ST2EE471J	470 ohm, 1/4W, ±5%, Carbon	AA
R115	VRD-ST2CD471J	470 ohm	AA
R116	VRD-ST2CD472J	4.7K ohm	AA
R117	VRD-ST2CD471J	470 ohm	AA
R118	VRD-ST2CD472J	4.7K ohm	AA
R119	VRD-ST2CD105J	1Meg ohm	AA
R120	VRD-ST2CD471J	470 ohm	AA
R121	VRD-ST2CD105J	1Meg ohm	AA
R122	VRD-ST2CD273J	27K ohm	AA
R123	VRD-ST2CD153J	15K ohm	AA
R124	VRD-ST2CD154J	150K ohm	AA
R125	VRD-ST2CD223J	22K ohm	AA
R126	VRD-ST2CD472J	4.7K ohm	AA
R127	VRD-SU2EE273J	27K ohm, 1/4W, ±5%, Carbon	AA
R128	VRD-ST2CD222J	2.2K ohm	AA
R129	VRD-ST2BB821J	820 ohm, 1/8W,±5%, Carbon	AA
R130	VRD-ST2CD222J	2.2K ohm	AA
R131	VRD-ST2CD151J	150K ohm	AA
R132	VRD-ST2CD104J	100K ohm	AA
R135	VRD-ST2CD822J	8.2K ohm	AA
R136	VRD-ST2CD473J	47K ohm	AA
R137	VRD-ST2CD152J	1.5K ohm	AA
R137A	VRD-ST2CD472J	4.7K ohm	AA
R138	VRD-ST2CD104J	100K ohm	AA
R139	VRD-ST2CD223J	22K ohm	AA
R140	VRD-ST2CD561J	560 ohm	AA
R142	VRD-ST2BB333J	33K ohm, 1/8W,±5%, Carbon	AA
R143	VRD-ST2CD222J	2.2K ohm	AA
R144	VRD-ST2CD272J	2.7K ohm	AA
R145	VRD-ST2CD104J	100K ohm	AA
R146	VRD-ST2CD473J	47K ohm	AA
R147	VRD-ST2CD104J	100K ohm	AA
R148	VRD-ST2CD334J	330K ohm	AA
R149	VRD-ST2CD473J	47K ohm	AA
R150	VRD-ST2CD823J	82K ohm	AA
R151	VRD-ST2CD151J	150 ohm	AA
R152	VRD-ST2CD334J	330K ohm	AA
R153	VRD-ST2CD473J	47K ohm	AA
R154	VRD-ST2CD101J	100 ohm	AA
R155	VRD-ST2CD393J	39K ohm	AA
R156	VRD-ST2CD151J	150 ohm	AA
R157	VRD-ST2CD223J	22K ohm	AA
R158	VRD-ST2CD334J	330K ohm	AA
R159	VRD-ST2CD101J	100 ohm	AA
R160	VRD-ST2CD223J	22K ohm	AA
R161	VRD-ST2CD102J	1K ohm	AA
R162	VRD-ST2BB473J	47K ohm,1/8W,±5%, Carbon	AA
R163	VRD-ST2CD103J	10K ohm	AA
R164	VRD-ST2CD103J	10K ohm	AA
R165	VRD-ST2CD104J	100K ohm	AA
R166	VRD-ST2CD104J	100K ohm	AA
R168	VRD-ST2CD220J	22 ohm	AA
R169	VRD-ST2CD151J	150 ohm	AA
R170	VRD-ST2CD103J	10K ohm	AA
R171	VRD-ST2CD564J	560K ohm	AA
R172	VRD-ST2CD333J	33K ohm	AA
R173	VRD-ST2CD103J	10K ohm	AA
R174	VRD-ST2CD151J	150 ohm	AA
R175	VRD-ST2CD393J	39K ohm	AA
R176	VRD-ST2CD103J	10K ohm	AA
R177	VRD-ST2CD101J	100 ohm	AA
R178	VRD-ST2CD822J	8.2K ohm	AA
R179	VRD-ST2CD103J	10K ohm	AA
R180	VRD-ST2CD105J	1Meg ohm	AA
R181	VRD-ST2CD104J	100K ohm	AA
R182	VRD-ST2BB103J	10K ohm, 1/8W,±5%, Carbon	AA
R183	VRD-ST2CD684J	680K ohm	AA
R184	VRD-ST2CD220J	22 ohm	AA
R185,186	VRD-ST2CD222J	2.2K ohm	AA
R187	VRD-ST2CD473J	47K ohm	AA
R189	VRD-ST2BB394J	390K ohm,1/8W,±5%, Carbon	AA

REF.NO.	PART NO.	DESCRIPTION	CODE
R191	VRD-ST2CD223J	22K ohm	AA
R192	VRD-ST2CD103J	10K ohm	AA
R194	VRD-ST2CD105J	1Meg ohm	AA
R195	VRD-ST2CD333J	33K ohm	AA
R198	VRD-ST2CD103J	10K ohm	AA
R199	VRD-ST2CD472J	4.7K ohm	AA
R200	VRD-ST2BB563J	56K ohm, 1/8W,±5%, Carbon	AA
R201	VRD-SU2EE471J	470 ohm, 1/4W,±5%, Carbon	AA
R202	VRD-ST2BB222J	2.2K ohm, 1/8W,±5%, Carbon	AA
R203	VRD-ST2BB152J	1.5K ohm, 1/8W,±5%, Carbon	AA
R204	VRD-ST2BB473J	47K ohm, 1/8W,±5%, Carbon	AA
R206	VRD-SU2EE473J	47K ohm, 1/4W,±5%, Carbon	AA
R207	VRD-ST2BB222J	2.2K ohm, 1/8W,±5%, Carbon	AA
R208	VRD-ST2BB333J	33K ohm, 1/8W,±5%, Carbon	AA
R209,210	VRD-ST2BB331J	330 ohm, 1/8W,±5%, Carbon	AA
R243	VRD-ST2CD474J	470K ohm	AA
R244	VRD-ST2CD154J	150K ohm	AA
R247	VRD-ST2CD391J	390 ohm	AA
R248	VRD-ST2EE473J	47K ohm, 1/4W, ±5%, Carbon	AA
R251	VRD-ST2CD472J	4.7K ohm	AA
R252,253, R254,255, R256,257	VRD-ST2CD104J	100K ohm	AA
R258	VRD-SU2EE103J	10K ohm, 1/4W, ±5%, Carbon	AA
R259	VRD-ST2CD153J	15K ohm	AA
R260,261	VRD-ST2CD102J	1K ohm	AA
R263	VRD-ST2BB154J	150K ohm, 1/8W,±5%, Carbon	AA
R264	VRD-ST2CD153J	15K ohm	AA
R265	VRD-ST2CD473J	47K ohm	AA
R266	VRD-ST2CD223J	22K ohm	AA
R267	VRD-ST2CD473J	47K ohm	AA
R268	VRD-ST2CD183J	18K ohm	AA
R269	VRD-ST2BB102J	1K ohm, 1/8W,±5%, Carbon	AA
R270	VRD-ST2BB153J	15K ohm, 1/8W,±5%, Carbon	AA
R271	VRD-ST2CD273J	27K ohm	AA
R272	VRD-ST2CD103J	10K ohm	AA
R273	VRD-ST2CD152J	1.5K ohm	AA
R274	VRD-ST2CD222J	2.2K ohm	AA
R275	VRD-ST2CD471J	470 ohm	AA
R276	VRD-ST2CD222J	2.2K ohm	AA
R277	VRD-ST2CD104J	100K ohm	AA
R278	VRD-ST2BB392J	3.9K ohm,1/8W,±5%, Carbon	AA
R279	VRD-ST2BB392J	3.9K ohm, 1/8W, ±5%, Carbon	AA
R282	VRD-SU2EE102J	1K ohm, 1/4W, ±5%, Carbon	AA
R283	VRD-ST2CD102J	1K ohm	AA
R284	VRD-ST2CD123J	12K ohm	AA
R285	VRD-ST2CD123J	12K ohm	AA
R288	VRD-ST2CD152J	1.5K ohm	AA
R289	VRD-ST2CD102J	1K ohm	AA
R290	VRD-ST2CD824J	820K ohm	AA
R291	VRD-SU2EE123J	12K ohm, 1/4W, ±5%, Carbon	AA
R292	VRD-ST2BB104J	100K ohm, 1/8W, ±5%, Carbon	AA
R293	VRD-ST2BB102J	1K ohm, 1/8W, ±5%, Carbon	AA
R294	VRD-ST2BB152J	1.5K ohm, 1/8W, ±5%, Carbon	AA
R295	VRD-ST2CD473K	47k ohm	AA
R296	VRD-ST2EE183J	18K ohm, 1/4W, ±5%, Carbon	AA
R10B	VRD-ST2BB564J	560K ohm, 1/8W, ±5%, Carbon	AA
R10C	VRD-ST2CD103J	10K ohm	AA
R10J	VRD-ST2BB104J	100K ohm, 1/8W, ±5%, Carbon	AA
R10K	VRD-ST2BB103J	10K ohm, 1/8W, ±5%,	AA
R10R	VRD-ST2BB153J	15K ohm, 1/8W, ±5%, Carbon	AA
R10T	VRD-ST2CD474J	470K ohm	AA
R201A	VRD-SU2EE102J	1K ohm, 1/4W, ±5%, Carbon	AA
R202A,203A, R204A,205A	VRD-ST2BB562J	5.6K ohm, 1/8W, ±5%,	AA
R206A	VRG-ST2EC560J	56 ohm, 1/4W, ±5%, Fusible	AB
R207A	VRD-ST2CD183J	18K ohm	AA
R208A	VRD-ST2BB152J	1.5K ohm, 1/8W, Carbon	AA
R209A	VRD-ST2BB473J	47K ohm, 1/8W, ±5%, Carbon	AA
R210A	VRD-ST2BB152J	1.5K ohm, 1/8W, ±5%, Carbon	AA
R211A,212A, R213A,214A	VRD-ST2BB682J	6.8K ohm,1/8W, ±5%, Carbon	AA
R215A	VRD-ST2BB183J	18K ohm, 1/8W, ±5%, Carbon	AA
R216A	VRD-SU2EE104J	100K ohm, 1/4W, ±5%,	AA
R217A	VRD-ST2BB332J	3.3K ohm, 1/8W, ±5%, Carbon	AA
R218A	VRG-ST2ED4R7J	4.7 ohm, 1/4W, ±5%, Fusible	AA
R219A	VRD-SU2EE332J	3.3K ohm, 1/4W, ±5%, Carbon	AA
R220A	VRD-SU2EE562J	5.6K ohm, 1/4W, ±5%, Carbon	AA
R222A	VRD-SU2EE103J	10K ohm, 1/4W, ±5%, Carbon	AA
R223A	VRD-ST2CD152J	1.5K ohm	AA
R224A	VRD-SU2EE152J	1.5K ohm, 1/4W, ±5%, Carbon	AA
R225A	VRG-ST2EC560J	56 ohm, 1/4W, ±5%. Fusible	AB
R226A	VRD-ST2CD183J	18K ohm	AA
R227A	VRD-ST2CD563J	56K ohm	AA
R228A	VRD-ST2BB683J	68K ohm, 1/8W, ±5%, Carbon	AA
R229A	VRD-ST2CD392J	3.9K ohm	AA
R230A	VRD-ST2BB102J	1K ohm, 1/8W, ±5%, Carbon	AA
R231A	VRD-SU2EE101J	100 ohm, 1/4W, ±5%, Carbon	AA
R232A	VRD-ST2BB564J	560K ohm, 1/8W, ±5%, Carbon	AA
R233A	VRD-ST2CD104J	100K ohm	AA
R234A	VRD-ST2CD273J	27K ohm	AA
R235A	VRD-ST2CD183J	18K ohm	AA
R237A	VRG-ST2ED4R7J	4.7 ohm, 1/4W, ±5%, Fusible	AB
R238A	VRD-ST2BB823J	82K ohm, 1/8W, ±5%, Carbon	AA
R240A	VRD-SU2EE273J	27K ohm, 1/4W, ±5%, Carbon	AA
R241A	VRD-ST2BB273J	27K ohm, 1/8W, ±5%, Carbon	AA
R242A	VRD-ST2BB104J	100K ohm, 1/8W, ±5%, Carbon	AA

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REF.NO.	PART NO.	DESCRIPTION	CODE
R243A	VRD-SU2EE432J	4.3K ohm, 1/4W, ±5%, Carbon	AA
R244A,245A	VRD-SU2EE562J	5.6K ohm, 1/4W, ±5%, Carbon	AA
R246A	VRD-SU2EE432J	4.3K ohm, 1/4W, ±5%, Carbon	AA
R247A	VRD-SU2EE472J	4.7K ohm, 1/4W, ±5%, Carbon	AA
R248A	VRD-SU2EE823J	82K ohm, 1/4W, ±5%, Carbon	AA
R250A	VRD-ST2CD222J	2.2K ohm	AA
R251A	VRD-SU2EE222J	2.2K ohm, 1/4W, ±5%, Carbon	AA
R252A	VRD-SU2EE472J	4.7K ohm, 1/4W, ±5%, Carbon	AA
R253A	VRD-SU2EE222J	2.2K ohm, 1/4W, ±5%, Carbon	AA
R254A	VRD-SU2EE332J	3.3K ohm, 1/4W, ±5%, Carbon	AA
R255A	VRD-SU2EE103J	10K ohm, 1/4W, ±5%, Carbon	AA
R256A	VRD-SU2EE223J	22K ohm, 1/4W, ±5%, Carbon	AA
R257A	VRD-SU2EE332J	3.3K ohm, 1/4W, ±5%, Carbon	AA
R258A	VRD-SU2EE473J	47K ohm, 1/4W, ±5%, Carbon	AA
R259A	VRD-ST2BB223J	22K ohm, 1/8W, ±5%, Carbon	AA
R260A	VRD-ST2CD332J	3.3K ohm	AA
R261A	VRD-SU2EE183J	18K ohm, 1/4W, ±5%, Carbon	AA
R262A	VRD-ST2CD332J	3.3K ohm	AA
R263A	VRD-SU2EE472J	4.7K ohm, 1/4W, ±5%, Carbon	AA
R264A	VRD-SU2EE103J	10K ohm, 1/4W, ±5%, Carbon	AA
R265A	VRD-SU2EE223J	22K ohm, 1/4W, ±5%, Carbon	AA
R266A	VRD-SU2EE682J	6.8K ohm, 1/4W, ±5%, Carbon	AA
R267A	VRD-ST2BB473J	47K ohm, 1/8W, ±5%, Carbon	AA
R268A	VRD-SU2EE183J	18K ohm, 1/4W, ±5%, Carbon	AA
R269A	VRD-SU2EE472J	4.7K ohm, 1/4W, ±5%, Carbon	AA
R270A	VRD-SU2EE104J	100K ohm, 1/4W, ±5%, Carbon	AA
R271A	VRD-SU2EE222J	2.2K ohm, 1/4W, ±5%, Carbon	AA
R272A	VRD-ST2BB103J	10K ohm, 1/8W, ±5%, Carbon	AA
R273A	VRD-SU2EE222J	2.2K ohm, 1/4W, ±5%, Carbon	AA
R274A	VRD-ST2CD103J	10K ohm	AA
R275A,276A	VRD-SU2EE104J	100K ohm, 1/4W, ±5%, Carbon	AA
R277A	VRD-ST2CD123J	12K ohm	AA
R300	VRD-ST2CD104J	100K ohm	AA
R301	VRD-ST2CD123J	12K ohm	AA
R302	VRD-ST2CD822J	8.2K ohm	AA
R303	VRD-ST2CD564J	560K ohm	AA
R304,305	VRD-ST2CD272J	2.7K ohm	AA
R306	VRD-ST2CD683J	68K ohm	AA
R307	VRD-ST2CD104J	100K ohm	AA
R308	VRD-SU2EE184J	180K ohm, 1/4W, ±5%, Carbon	AA
R309	VRD-ST2CD562J	5.6K ohm	AA
R310	VRD-ST2CD564J	560K ohm	AA
R311	VRD-ST2CD222J	2.2K ohm	AA
R312	VRD-ST2CD332J	3.3K ohm	AA
R313	VRD-ST2CD681J	680 ohm	AA
R315	VRD-ST2CD561J	560 ohm	AA
R316	VRD-ST2CD332J	3.3K ohm	AA
R317	VRD-ST2CD474J	470K ohm	AA
R318	VRD-ST2CD333J	33K ohm	AA
R319	VRD-ST2CD334J	330K ohm	AA
R320	VRD-ST2CD103J	10K ohm	AA
R321	VRD-ST2CD104J	100K ohm	AA
R322	VRD-ST2CD822J	8.2K ohm	AA
R323	VRD-ST2CD332J	3.3K ohm	AA
R324	VRD-ST2CD473J	47K ohm	AA
R327	VRD-ST2CD154J	1.5Meg ohm	AA
R328	VRD-ST2CD104J	100K ohm	AA
R329	VRD-ST2CD103J	10K ohm	AA
R330	VRD-ST2BB684J	680K ohm, 1/8W, ±5%, Carbon	AA
R331	VRD-ST2CD103J	10K ohm	AA
R333	VRD-ST2CD333J	33K ohm	AA
R334	VRD-ST2CD392J	3.9K ohm	AA
R335,336	VRD-ST2CD104J	100K ohm	AA
R337,338, R349,340, R341	VRD-ST2CD682J	6.8K ohm	AA
R342	VRD-ST2BB682J	6.8K ohm, 1/8W, ±5%, Carbon	AA
R343,344	VRD-ST2BB332J	3.3K ohm, 1/8W, ±5%, Carbon	AA
R345,346	VRD-ST2CD152J	1.5K ohm	AA
R347,348	VRD-ST2CD332J	3.3K ohm	AA
R349	VRD-ST2CD221J	220 ohm	AA
R350	VRD-ST2CD221J	220 ohm	AA
R351,352	VRD-ST2CD105J	1Meg ohm	AA
R353,354	VRD-ST2CD101J	100 ohm	AA
R355	VRD-ST2EE471J	470 ohm, 1/4W, ±5%, Carbon	AA
R356	VRD-ST2CD183J	18K ohm	AA
R357	VRD-ST2CD122J	1.2K ohm	AA
R358	VRD-ST2CD392J	3.9K ohm	AA
R359	VRD-ST2CD102J	1K ohm	AA
R360	VRD-ST2CD390J	39 ohm	AA
R361,362	VRD-ST2CD333J	33K ohm	AA
R363	VRD-ST2CD181J	180 ohm	AA
R364	VRD-ST2CD222J	2.2K ohm	AA
R366	VRD-ST2CD123J	12K ohm	AA
R367	VRD-ST2CD822J	8.2K ohm	AA
R368	VRD-ST2CD102J	1K ohm	AA
R369	VRD-ST2CD472J	4.7K ohm	AA
R370	VRD-ST2CD103J	10K ohm	AA
R371	VRD-ST2CD473J	47K ohm	AA
R372	VRD-ST2CD223J	22K ohm	AA
R373	VRD-ST2CD274J	270K ohm	AA
R375	VRD-ST2CD222J	2.2K ohm	AA
R376,377	VRD-ST2CD332J	3.3K ohm	AA
R378	VRD-ST2CD105J	1Meg ohm	AA
R379	VRD-ST2CD334J	330K ohm	AA
R380	VRD-ST2CD332J	3.3K ohm	AA
R381	VRD-ST2CD332J	3.3K ohm	AA
R382	VRD-ST2CD472J	4.7K ohm	AA
R383	VRD-ST2CD104J	100K ohm	AA
R384	VRD-ST2CD392J	3.9K ohm	AA
R385	VRD-ST2CD563J	56K ohm	AA
R386	VRD-ST2CD222J	2.2K ohm	AA
R387	VRG-ST2EC560J	56 ohm, 1/4W, ±5%, Fusible	AB

REF.NO.	PART NO.	DESCRIPTION	CODE
R388,389	VRG-ST2ED4R7J	4.7 ohm, 1/4W, ±5%, Fusible	AB
R390,391	VRD-ST2CD561J	560 ohm	AA
R392	VRG-ST2HC220J	22 ohm, 1/2W, ±5%, Fusible	AB
R393,394	VRG-ST2ED4R7J	4.7 ohm, 1/4W, ±5%, Fusible	AB
R396	VRD-ST2CD474J	470K ohm	AA
R397	VRD-ST2CD224J	220K ohm	AA
R398	VRD-SU2EE184J	180K ohm, 1/4W, ±5%, Carbon	AA
R399	VRD-ST2BB223J	22K ohm, 1/8W, ±5%, Carbon	AA
R30A,30B	VRD-ST2EE562J	5.6K ohm, 1/4W, ±5%, Carbon	AA
R30C	VRD-ST2EE103J	10K ohm, 1/4W, ±5%, Carbon	AA
R30W	VRD-ST2CD104J	100K ohm	AA
R30U	VRD-ST2BB153J	15K ohm, 1/8W, ±5%, Carbon	AA
R30V	VRD-ST2CD221J	220 ohm, 1/8W, ±5%, Carbon	AA
R30X	VRD-ST2BB124J	120K ohm, 1/8W, ±5%, Carbon	AA
R31A,31B	VRD-ST2BB332J	3.3K ohm, 1/8W, ±5%, Carbon	AA
R31C	VRD-ST2CD105J	1Meg ohm	AA
R400	VRS-PT3AA220J	22 ohm, 1W, ±5%, Metal Oxide Film	AA
R401	VRS-PT3DA560J	56 ohm, 2W, ±5%, Metal Oxide Film	AA
R403	VRD-ST2CD222J	2.2K ohm	AA
R404	VRD-ST2CD332J	3.3K ohm	AA
R405	VRD-ST2CD100J	10 ohm	AA
R406	VRD-ST2CD684J	680K ohm	AA
R407	VRD-ST2CD181J	180 ohm	AA
R408	VRD-ST2CD104J	100K ohm	AA
R409	VRD-ST2CD152J	1.5K ohm	AA
R410	VRD-ST2CD103J	10K ohm	AA
R411	VRD-ST2CD470J	47 ohm	AA
R412	VRD-ST2CD274J	270K ohm	AA
R413	VRD-ST2CD223J	22K ohm	AA
R414	VRG-ST2ED4R7J	4.7 ohm, 1/4W, ±5%, Fusible	AB
R415	VRD-ST2CD181J	180 ohm	AA
R416	VRD-ST2CD181J	180 ohm	AA
R417	VRD-ST2CD683J	68K ohm	AA
R418	VRD-ST2CD473J	47K ohm	AA
R419	VRD-ST2CD392J	3.9K ohm	AA
R420	VRD-ST2CD223J	22K ohm	AA
R421	VRD-ST2CD220J	22 ohm	AA
R422	VRD-ST2CD473J	47K ohm	AA
R423	VRD-ST2CD222J	2.2K ohm	AA
R425	VRD-ST2CD273J	27K ohm	AA
R426	VRD-ST2CD220J	22 ohm	AA
R427	VRD-ST2CD222J	2.2K ohm	AA
R428	VRD-ST2CD683J	68K ohm	AA
R429	VRD-ST2CD683J	68K ohm	AA
R431	VRD-ST2CD683J	68K ohm	AA
R432	VRD-ST2CD222J	2.2K ohm	AA
R433	VRD-ST2CD103J	10K ohm	AA
R434	VRD-ST2CD684J	680K ohm	AA
R435	VRG-ST2HD2R2J	2.2 ohm, 1/2W, ±5%, Fusible	AB
R436	VRD-ST2CD2R2J	2.2 ohm	AA
R437	VRD-ST2CD222J	2.2K ohm	AA
R510,511, R512,513	VRD-ST2CD332J	3.3K ohm	AA
R514	VRD-ST2CD103J	10K ohm	AA
R515	VRD-ST2CD122J	1.2K ohm	AA
R516	VRD-ST2CD223J	22K ohm	AA
R517	VRD-ST2CD103J	10K ohm	AA
R520,521, R522,523, R524,525, R526,527, R528,529, R530,531, R532,533, R534,535, R536,537	VRD-ST2CD223J	22K ohm	AA
R540	VRD-ST2EE3R3J	3.3 ohm, 1/4W, ±5%, Carbon	AA
R542	VRD-ST2EE4R7J	4.7 ohm, 1/4W, ±5%, Carbon	AA
R543	VRD-ST2CD4R7J	4.7 ohm	AA
R560	VRD-ST2CD392J	3.9K ohm	AA
R561	VRD-ST2CD563J	56K ohm	AA
R562	VRD-ST2CD222J	2.2K ohm	AA
R563	VRD-ST2CD333J	33K ohm	AA
R564	VRD-ST2CD473J	47K ohm	AA
R565	VRD-ST2CD222J	2.2K ohm	AA
R566	VRD-ST2CD183J	18K ohm	AA
R567	VRD-ST2CD103J	10K ohm	AA
R570,571, R572,573	VRD-ST2CD223J	22K ohm	AA
R574	VRD-ST2CD103J	10K ohm	AA
R590	VRD-ST2CD330J	33 ohm	AA
R591	VRD-ST2CD330J	33 ohm	AA
R592	VRD-ST2CD153J	15K ohm	AA
R593	VRD-ST2CD105J	1Meg ohm	AA
R595	VRD-ST2EE150J	15 ohm, 1/4W, ±5%, Carbon	AA
R701	VRG-ST2ED4R7J	4.7 ohm, 1/4W, ±5%, Fusible	AB
R704	VRG-ST2ED4R7J	4.7 ohm, 1/4W, ±5%, Fusible	AB
R705	VRG-ST2ED4R7J	4.7 ohm, 1/4W, ±5%, Fusible	AB
R707	VRD-ST2CD562J	5.6K ohm	AA
R708	VRD-ST2CD153J	15K ohm	AA
R709	VRD-ST2CD561J	560 ohm	AA
R711	VRD-ST2CD562J	5.6K ohm	AA
R712	VRD-ST2CD153J	15K ohm	AA
R713	VRD-ST2CD561J	560 ohm	AA
R714	VRD-ST2BB153J	15K ohm, 1/8W, ±5%, Carbon	AA
R715	VRD-ST2CD103J	10K ohm	AA
R716	VRD-ST2BB153J	15K ohm, 1/8W, ±5%, Carbon	AA
R717	VRD-ST2CD103J	10K ohm	AA
R718	VRD-ST2BB333J	33K ohm, 1/8W, ±5%, Carbon	AA
R719	VRD-ST2BB683J	68K ohm, 1/8W, ±5%, Carbon	AA
R901	VRD-ST2CD103J	10K ohm	AA

RESISTOR ARRAY

RA520	RMPTC0039AFZZ	10K ohm x 5	AC
RA521	RMPTC0029AFZZ	10K ohm x 4	AB

DX-3/S

CIRCUIT PARTS

REF.NO.	PART NO.	DESCRIPTION	CODE
BI101A/ CNS101	CCNCW340HAF01	9 Pin Board in Plug/8 Pin Socket Assembly	AL
BI401/ TP401	CCNCW323BAF09	2 Pin Board in Plug/2 Pin Socket Assembly, (Test Point)	AC
BI402/ CNP301	QCNW-2120AFZZ	14 Pin Board in Plug/14 Pin Plug Assembly	AS
BI403/ CNS103-A,B	CCNCW421LAF05	11 Pin Board in Plug/7 Pin, 6 Pin Socket Assembly	AM
BI404/ CNS404	CCNCW427BAF15	2 Pin Board in Plug/2 Pin Socket Assembly	AC
BI500 CNS403	CCNCW430DAF01	5 Pin Board in Plug/4 Pin Socket Assembly	AE
BI501	CCNCW418HAF10	8 Pin Board in Plug Assembly	AE
BI502/ CNS502	CCNCW247LAF03	12 Pin Board in Plug/11 Pin Socket Assembly	AK
BI602/ CNP904	CCNCM520GAF01	8 Pin Board in Plug/7 Pin Plug Assembly	AG
BI602/ CNS401	CCNCW431EAF01	5 Pin Board in Plug/5 Pin Socket Assembly	AE
BI603/ CNP502	CCNCM524LAF01	12 Pin Board in Plug/11 Pin Plug Assembly	AH
BI604/ CNS701	CCNCW324HAF04	9 Pin Board in Plug/8 Pin Socket Assembly	AH
BI901/ CNS500	CCNCW324HAF03	9 Pin Board in Plug/8 Pin Socket Assembly	AK
BI902/ CNS402	CCNCW432FAF01	7 Pin Board in Plug/6 Pin Socket Assembly	AH
BI904/ CNS904	CCNCW243GAF08	8 Pin Board in Plug/7 Pin Socket Assembly	AG
CNP1	QCNCM589HAFZZ	8 Pin Plug	AB
CNP10A	QCNCM585DAFZZ	4 Pin Plug	AB
CNP101	QCNCM481HAFZZ	8 Pin Plug	AC
CNP102	QCNCM095BAFZZ	2 Pin Plug	AB
CNP103-A	QCNCM480GAFZZ	7 Pin Plug	AC
CNP103-B	QCNCM466FAFZZ	6 Pin Plug	AB
CNP401	QCNCM605EAFZZ	5 Pin Plug	AB
CNP402	QCNCM606FAFZZ	6 Pin Plug	AB
CNP403	QCNCM604DAFZZ	4 Pin Plug	AB
CNP404	QCNCM602BAFZZ	2 Pin Plug	AA
CNP500	QCNCM460HAFZZ	8 Pin Plug	AE
CNP701	QCNCM460HAFZZ	8 Pin Plug	AE
CNP901	QCNCM621BAFZZ	2 Pin Plug	AA
CNP902	QCNCM622CAFZZ	3 Pin Plug	AB
CNP903	QCNCM623DAFZZ	4 Pin Plug	AB
CNP905	QCNCM583BAFZZ	2Pin Plug	AA
CNS1	CCNCW434HAF05	2 Pin Socket Assembly	
CNS10	CCNCW430DAF04	4 Pin Socket Assembly	
CNS102	CCNCW238BAF21	2 Pin Socket Assembly	AC
CNS901	————————	2 Pin Socket (Refer to	—
CNS902	————————	3 Pin Socket Assembly	—
CNS903	————————	4 Pin Socket Part T901.)	—
CNS905	CCNCW428BAF01	2Pin Socket Assembly	AC
CON601	QCNCW542XAFZZ	22 Pin Socket	AM
CON602	QCNCWZY44AFZZ	44 Pin Socket	AN
⚠ F901	QFS-C202EAFNI	Fuse, T2A	AD
⚠ F902	QFS-C202EAFNI	Fuse, T2A	AD
⚠ F903	QFS-C102EAFNI	Fuse, T1A	AD
⚠ F904	QFS-C102EAFNI	Fuse, T1A	AD
⚠ F901	QFS-B202AAFNB	Fuse, 2A 125V, for USA and Canada Only	AE
⚠ F902	QFS-B202AAFNB	Fuse, 2A 125V, for USA and Canada Only	AE
⚠ F903	QFS-B102AAFNB	Fuse, 1A 125V, for USA and Canada Only	AE
⚠ F904	QFS-B102AAFNB	Fuse, 1A 125V, for USA and Canada Only	AE
OS701	QSOCJ0483AFZZ	Output Socket, 4 Pin (RCA Type)	AE
PL510	RLMPM0152AFZZ	Indicator, APMS (MEMORY)	AD
PL511	RLMPM0152AFZZ	Indicator, REPEAT	AD
PL512	RLMPM0152AFZZ	Indicator, PAUSE	AD
PL513	RLMPM0152AFZZ	Indicator, PLAY	AD
RLY300	RRLYZ0088AFZZ	Relay	AP
RLY701	RRLYZ0082AFZZ	Relay	AN
⚠ SO901	QSOCE0604AFZZ	Socket, Voltage Selector	AL
SW401	QSW-K0060AFZZ	Switch, EJECT	AB
SW402	QSW-F0136AFZZ	Switch, Door Close	AD
SW403	QSW-F0136AFZZ	Switch, Door Open	AD
SW404	QSW-F0136AFZZ	Switch, Laser ON/OFF	AD
SW500	QSW-K0060AFZZ	Switch, MEMORY	AB
SW501	QSW-K0060AFZZ	Switch, DOWN	AB
SW502	QSW-K0060AFZZ	Switch, CLEAR APMS	AB
SW503	QSW-K0060AFZZ	Switch, UP	AB
SW504	QSW-K0060AFZZ	Switch, REPEAT	AB
SW505	QSW-K0060AFZZ	Switch, REV	AB
SW506	QSW-K0060AFZZ	Switch, FWD	AB
SW507	QSW-K0060AFZZ	Switch, PAUSE	AB
SW508	QSW-K0060AFZZ	Switch, STOP/CLEAR	AB
SW509	QSW-K0060AFZZ	Switch, PLAY	AB
⚠ SW901	QSW-P9165AFZZ	Switch, POWER	AG
TP103/104	QCNCM215DAFZZ	4 Pin, Test Point, Servo P.W.B.	AB
V590	VVKQBT-12ZK-1	Fluorescent Display Tube, TRACK and TIME	AY
V591	VVKFG100SE1-1	Fluorescent Display Tube, Music Program Indicator	BA
M401	RMOTV0129AF01	Disc Spin Motor	BE
M402	RMOTV0130AF01	Motor, Pick-up Unit Shift (with Pulley)	AD
M403	RMOTV0131AF01	Motor, Door Open/Close (with Pulley)	AT

MECHANICAL PARTS

101	GDORF3068AFZZ	Disc Door	AR
104	LANGF0809AFFW	Bracket, Mechanism, Right Side	
107	LANGK0350AFZZ	Bracket, Door Support, Left Side	
108	LANGK0351AFZZ	Bracket, Door Support, Right Side	
109	LANGT1168AFZZ	Bracket, Pick-up Shift Motor	AG
111	LCHSM0423AF01	Mechanism Main Chassis Sub-Assembly	
112	LHLDZ3071AFZZ	Sub Disc Support	
113	LHLDZ3070AFZZ	Disk Support	AS
114	LPLTM0131AFFW	Back Plate, Pick-up Unit Fixing	AD
115	LSLVM0148AFFW	Sleeve, Disk Support Bracket	AB
117	LSLVM0160AFFW	Sleeve, Azimuth Adjustment, 5.5mm Dia. x 7mm Dia. x 4mm	AB
118	LSLVM0161AFFW	Door Sleeve, 2.5mm Dia. x 4.6mm Dia. x 2mm	AB
119	LSLVM0162AFFW	Door Sleeve, 2.5mm Dia. x 4.5mm Dia. x 7mm	AB
120	LSLVM0163AFFW	Door Sleeve, 2mm Dia. x 4.1mm Dia. x 2mm	AB
121	LX-BZ0457AFZZ	Screw, Disc Support Fitting	AB

REF.NO.	PART NO.	DESCRIPTION	CODE
122	LX-WZ1069AFZZ	Stop Washer	AA
123	LX-WZ5015AGZZ	Washer, 3.1mm Dia. x 5.4mm Dia. x 0.25mm	AA
124	LX-RZ0002AFZZ	Stop Ring	
125	MLEVP0416AF00	Door Open/Close Crank	AC
126	MLEVP0473AFZZ	Disc Holder Guide	AC
127	MLNKM0059AFZZ	Pick-up Unit Driving Wire	AH
128	MSPRC0349AFFJ	Spring, Azimuth Adjustment	AA
129	MSPRP0340AFFJ	Spring, Disc Stopper	AC
130	MSPRC0415AFFJ	Spring, Disc Support	
131	MSPRT1037AFFJ	Spring, Kick Lever	
132	MSPRT1004AFFJ	Spring, Pick-up Driving Wire	
133	NBLTK0243AFZZ	Belt, Pick-up Shift	AB
134	NBLTK0244AFZZ	Belt, Door Open/Close	AB
135	NBRGM0055AFFW	Disc Bearing	AK
136	NGERH0111AFZZ	Door Open/Close Gear Assembly	AN
136-1	————————	Door Open/Close Gear Bracket	
136-2	————————	Worm Pulley	
136-3	————————	Driving Gear	
136-4	————————	Gear Shaft, Long	
136-5	————————	Gear Shaft, Short	
137	NGERH0110AFZZ	Door Open/Close Gear	AD
138	NPLYR0094AFZZ	Loading Pulley	AD
139	MSPRC0348AFFJ	Spring, Over Stroke	AA
140	NPLYR0091AFZZ	Pulley, Pick-up Shift	AE
141	NPLYR0092AFZZ	Pulley, Pick-up Shift, Right Side	AG
142	NPLYR0093AFZZ	Pick-up Pulley, Left Side	AF
143	NROLM0069AFZZ	Disk Stopper, Thrust Cap	AC
144	NROLP0072AF00	Disk Stopper	AC
145	NSFTD0234AFFD	Shaft, Door Open/Close	AG
146	MLEVP0470AFZZ	Disc Base	
147	MLEVP0471AFZZ	Lever, Kick, Right Side	
147	MLEVP0472AFZZ	Lever, Kick, Left Side	
149	PSPAI0246AFZZ	Insulating Plate, Skelton Switch	
150	LANGF0799AFFW	Bracket, Pick-up Fixing	AC
151	LRTUP0050AFZZ	Stop Washer	

CABINET EXPLODED VIEW PARTS

201	CPNLC3536AF02	Front Panel Sub-Assembly (DX-3)	BN
201-1	GMADM0021AFSA	Indicator Window	AS
201-2	HPNLC3536AFSA	Front Panel	BA
201-3	JKNBR0209AFSA	Button, APMS Input (MEMORY, CLEAR, UP, DOWN)	AG
201-4	JKNBR0210AFSA	Button, REPEAT, PAUSE, REV, FWD, EJECT	AH
201-5	JKNBR0211AFSA	Button, STOP/CLEAR, PLAY	AH
201-6	LX-LZ0051AF00	Push-Rivet, Nylon	AA
201-7	PFILW0037AFSA	Indicator Filter, Small	AK
201-8	PSPAS0154AFSA	Button Spacer, Power	AD
201-9	PSPAS0155AFSA	Button Spacer, EJECT	AG
201-10	PSPAS0156AFSA	Button Spacer, Operation	AD
201-11	PSPAZ0118AFZZ	Cushion, Operation Button	AB
201-12	PSPAZ0119AFZZ	Cushion, EJECT Button	AA
201-13	PSPAZ0126AFZZ	Lamp Spacer	AB
201-14	PSPAZ0138AFZZ	Cushion, Indicator	AA
201-15	PSPAZ0139AFZZ	Cushion, Indicator	AB
201-16	PSPAZ0140AFZZ	Cushion, Indicator	AA
201-17	PSPAZ0141AFZZ	Cushion, Indicator	AA
201-18	PFILW0039AFSA	Indicator Filter, Large	AA
201-19	GCOVA0173AFSA	Cover, Indicator	AM
• 201-20	LANGQ0876AFZZ	Bracket, Display P.W.B. Support	AC

REF.NO.	PART NO.	DESCRIPTION	CODE
201	CPNLC3543AF02	Front Panel Sub-Assembly (DX-3S)	BN
201-1	GMADM0022AFSA	Indicator Window	AT
201-2	HPNLC3543AFSA	Front Panel	BA
201-3	JKNBR0209AFSA	Button, APMS Input (MEMORY, CLEAR, UP, DOWN)	AG
201-4	JKNBR0210AFSA	Button, REPEAT, PAUSE, REV, FWD EJECT	AH
201-5	JKNBR0211AFSA	Button, STOP/CLEAR, PLAY	AH
201-6	LX-LZ0051AF00	Push-Rivet, Nylon	AA
201-7	PFILW0037AFSA	Indicator Filter S	AK
201-8	PSPAS0154AFSB	Button Spacer, Power	AD
201-9	PSPAS0155AFSB	Button Spacer, Eject	AG
201-10	PSPAS0156AFSB	BUTTON Spacer, Operation	AD
201-11	PAPAZ0118AFZZ	Cushion, Operation Button	AB
201-12	PSPAZ0119AFZZ	Cushion, EJECT Button	AA
201-13	PSPAZ0126AFZZ	Lamp Spacer	AB
201-14	PSPAZ0138AFZZ	Cushion, Indicator	AA
201-15	PSPAZ0139AFZZ	Cushion, Indicator	AB
201-16	PSPAZ0140AFZZ	Cushion, Indicator	AA
201-17	PSPAZ0141AFZZ	Cushion, Indicator	AA
201-18	PFILW0039AFSA	Indicator Filter L	AA
201-19	GCOVA0173AFSA	Cover, Indicator	AM
201-20	LANGQ0876AFZZ	Bracket, Display P.W.B Fitting	AK
• 201-24	HBDGB0019TASA	Badge, 'SHARP'	AD
202	CPNLC3537AF02	Disc Door Sub-Assembly (DX-3)	AK
202-1	HBDGB0019TASA	Badge,'SHARP'	AE
202-2	HDECQ0185AFSA	Badge	AE
202-3	HPNLC3537AFSA	Door Panel (Top)	AN
202-4	HPNLC3538AFSA	Door Panel (Bottom)	AT
202-5	GMADC0055AFSA	Window, Disc Door, Acryl	AS
202-6	HDECC0069AFSA	Metal Ornament, Door, Left Side	AM
202-7	HDECC0070AFSA	Metal Ornament, Door, Right Side	AM
202-8	LANGK0340AFZZ	Bracket, Door, Left Side	AB
• 202-9	LANGK0339AFZZ	Bracket, Door, Right Side	AB
202	CPNLC3544AF02	Disc Door Sub-Assembly (DX-3S)	BD
202-1	Not Used	Badge, 'SHARP'	
202-2	Not Used	Badge	
202-3	HPNLC3544AFSA	Door Panel (TOP)	AN
202-4	HPNLC3545AFSA	Door Panel (BOTTOM)	AT
202-5	GMADC0056AFSA	Window, Disc Door, Acryl	
202-6	HDECC0069AFSB	Metal Ornament, Door, Left Side	AM
202-7	HDECC0070AFSB	Metal Ornament, Door, Right Side	AM
202-8	LANGK0340AFZZ	Bracket, Door Left Side	AB
• 202-9	LANGK0339AFZZ	Bracket, Door Right Side	AB
203	GCAB-3151AFSA	Cabinet (DX-3)	AW
	GCAB-3151AFSB	Cabinet (DX-3S)	
205	GCOVH3165AF00	Cover, Voltage Selector	AE
	GCOVH3168AF00	Cover, Voltage Selector for USA Only	AE
206	GFTAU3115AFZZ	Bottom Plate	AQ
207	GLEGP0081AFZZ	Rubber Leg, Rear	AC
208	GLEGP0083AFZZ	Rubber Leg, Front	AC

DX-3/S

REF.NO.	PART NO.	DESCRIPTION	CODE
209	LANGF0808AFFW	Bracket, Mechanism, Left Side	AC
210	LANGJ0106AFFW	Bracket, Cushion, Left Side	AB
214	HDECQ0184AFSA	Center Cap	AL
216	JKNBM0485AFSA	Button, Power (DX-3)	AH
	JKNBM0485AFSB	Button, Power (DX-3S)	AK
217	LANGA0097AFZZ	Socket Stopper (CNP301)	AC
218	LANGF0811AFFW	Bracket, Left Side	AL
219	LANGF0810AFFW	Bracket, Right Side	AL
220	LANGF0807AFFW	Bracket, Front, Right Side	AL
221	LANGK0335AFFW	Bracket, Drive P.W.B./ Heat Sink (IC402, IC407)	AD
222	LANGJ0107AFFW	Bracket, Cushion, Right Side	AB
223	LANGF0806AFFW	Bracket, Font, Left Side	AG
224	LANGQ0875AFSA	Rear Panel	AP
226	LANGQ0877AFZZ	Bracket, Audio Output P.W.B.	
227	LANGQ0903AFFW	Bracket, Power Switch P.W.B. Fixing	AD
	LBSHC0004AGZZ	Bushing, AC Power Supply Cord	AB
⚠ 228	LBSHC0002AGZZ	Bushing AC Power Supply Cord for UK only	AB
	LBSHC0007AFZZ	Bushing AC Power Supply Cord	AB
229	LCRA-0057AFZZ	Clamper, Lead Wire	AA
230	LHLDF1204AFZZ	P.W.B. Suport Holder	AB
231	LHLDF1233AFZZ	P.W.B. Suport Holder, RF Amplifier P.W.B.	AA
232	LHLDP1077AFZZ	Lamp Holder, PL510 - PL513	AG
233	LHLDW1050AFZZ	Wire Holder	AA
234	LHLDW1066AFZZ	Wire Holder	AA
235	LHLDW1068AFZZ	Nylon Band, 100mm	AA
236	LHLDW1075AFZZ	Nylon Band, 60mm	AA
237	LHLDW9002CEZZ	Wire Holder	AA
238	LHLDW1098AFZZ	Nylon Band, Black	AA
239	LX-BZ0288AFZZ	Screw, Power Transformer Fitting	AA
240	LX-BZ0261AFFD	Screw, Rubber Leg Fitting	AA
241	LX-HZ0087AFFD	Screw, Power Switch P.W.B. and Mother P.W.B. Fitting	AA
242	LX-LZ0051AF00	Push-Rivet	AA
243	LX-NZ0121AFFD	Nut, Servo P.W.B. Heat Sink	AA
244	MLEVF1431AFZZ	Lever, Power Switch	AC
245	PCOVU9121AF00	Felt, Lamp (PL510 - PL513)	AB
246	PCOVW9124AFZZ	Insulation Cover, Switch P.W.B.	AG
247	PGIDI0008AFSA	Disc Guide	AS
248	PSLDM3283AFZZ	Shield Plate, Demodulator P.W.B.	AH
249	PSLDM3288AFZZ	Shield Plate, Demodulator P.W.B.	AH
250	PSLDM3287AFZZ	Shield Plate, Servo P.W.B.	AH
251	PSLDM3289AFZZ	Shield Bracket, Left Side	AD
252	PSLDM3290AFZZ	Shield Bracket, Right Side	AD
254	PCUSG0220AF00	Cushion, Mechanism	AB
256	PRDAR0307AFZZ	Heat Sink, Power P.W.B. (IC901-IC905)	AL
257	PRDAR0316AFFW	Heat Sink, Demodulator P.W.B. (IC124)	AB
259	PSPAZ0110AFZZ	Spacer, Music Program Indicator	AB
260	PSPAZ0111AFZZ	Spacer, TRACK and TIME Indicator	AB
261	PSPAZ0142AFZZ	Spacer, Pick-up Unit	AB

REF.NO.	PART NO.	DESCRIPTION	CODE
⚠ 262	QACCV0001AGZZ	AC Power Supply Cord	AL
⚠	QACCB0054AF09	AC Power Supply Cord	AK
⚠	QACCD0056AF00	AC Power Supply Cord	AG
	QACCD0057AF00	AC Power Supply Cord	
⚠	QACCL0052AFZZ	AC Power Supply Cord	AL
⚠	QACCZ0056AF00	AC Power Supply Cord	AL
263	QFSHD1054AFZZ	Fuse Holder, Small	AA
⚠ 264	QFSHD2055AFZZ	Fuse Holder, Large	AA
265	QHWS-3001AGFN	Lug Terminal	AA
266	QLUGP0105AGZZ	Lug Terminal, Test Point	AA
267	QLUGP0165AFZZ	Lug Terminal, Switch P.W.B.	AA
268	QSOCT2151AFZZ	IC Socket, IC901-IC905	AB
270	RCTRH0050AFZZ	Pick-up Assembly	**
271	PSPAZ0143AFZZ	Spacer, Servo P.W.B. Shield Plate	AC
272	PFLT-0570AF00	Felt, Shield Bracket, Left Side	AC
273	PCUSG0213AF00	Rubber Cushion, Rear Panel	AA
278	PCUSG0211AF09	Cushion Rubber, Mechanism P.W.B.	AA
279	PCUSG0212AF09	Cushion Rubber, Mechanism P.W.B.	AA
281	LX-WZ3017CEFN	Washer, Front Panel Fixing	AA
282	PCOVP1164AFZZ	Protector of capacitor, C960	AC
283	LX-HZ0126AFFF	Screw	AB
284	LPLTP0067AFZZ	Shield Plate	AD
285	PCOVZ1069AFZZ	Cover, Lead Wire	AE
286	LPLTM0142AFZZ	Plate, Cushion Rubber	AC
287	PCOVZ1071AF00	Cover, Bracket	AA
288	PCUSG0230AF00	Cushion, Rubber	AK
289	PCUSG0231AF00	Cushion, Rubber	AH
290	PCUSG0232AF00	Cushion, Rubber	AF
291	PCUSS0228AF00	Cushion, Rubber	AB
292	PCUSS0230AF00	Cushion, Rubber	AB
293	PCUSS0215AF00	Cushion, Cabinet	AB
294	PCUSS0232AF00	Cushion, Cabinet	AA
295	PSHEG0064AF00	Cushion, Cabinet (DX-3)	AD
	PSHEG0064AF09	Cushion, Cabinet (DX-3S)	AE
296	PSHEG0065AF00	Cushion, Cabinet (DX-3)	AC
	PSHEG0065AF09	Cushion, Cabinet (DX-3S)	AC
297	LPLTZ0068AF00	Plate, Mechanism, Left Side	AD
298	LX-HZ0128AFFD	Screw, Rubber Cushion	
	PCUSG0213AF00	Cushion, Rubber	AA
299	PFLT-0609AFZZ	Cushion	

ACCESSORY/PACKING PARTS

	GLEGG0069AFZZ	Cushion, Leg	AE
	QCNW-1953AFZZ	Connecting Cord, RCA Pin Type, 1m	AN
	QPLGA0251AFZZ	Adaptor, AC Power Supply Cord	AE
*	SSAKA0024AFZZ	Polyethylene Bag, Accessory	AA
*	SSAKA0104AFZZ	Polyethylene Bag, Accessory (UK only)	AH
*	SSAKA0109AFZZ	Ploye thylene Bag, Cushion Leg	AA
	TGANE1117AFZZ	Warranty Card, for UK	AB
	TGANG1054AF01	Warranty Card, for Europe	AA
	TINSZ0477AFZZ	Operation Manual	BB
	TINSE0937AFZZ	Owner's Manual for USA	
	TLABZ0430AFZZ	Caution Card, Cushion Leg	AA
	UCLEH0051AFZZ	Disc Cleaner Cloth	
	LX-BZ0461AFZZ	Screw, Transportation Fixing	AC
*	SPAKA0990AFZZ	Packing Add., Left Side	AN
*	SPAKA0996AFZZ	Packing Add., Right Side	AN
*	SPAKC2414AFZZ	Packing Case (DX-3)	AM
*	SPAKC2467AFZZ	Packing Case, (DX-3S)	AM
*	SPAKP0348AFZZ	Polyethylene Bag, Unit	AE

*	SPAKX0906AFZZ	Cushion, Front Panel	AD
*	SPAKX0907AFZZ	Protection Sheet, Door	AB
	TCAUH0056AGZZ	Caution Label, AC Power Supply Cord for UK	AA
	TCAUS0100AFSA	Caution Label, Cabinet (DX-3)	AB
	TCAUS0100AFSB	Caution Label, Cabinet (DX-3S)	AB
	TCAUZ0039AFZZ	Caution, Polyethylene Bag for UK	AA
	TCAUZ0147AFZZ	Caution, Transportation Fixing Screw	AC
	TLABH0168AFZZ	Caution Label, Door (DX-3)	
	TLABH0179AFZZ	Caution Label, Door	AB
	TLABJ0006AFZZ	Label, "Made in Japan" for Used in UK	AA
	TLABJ0058AFSB	Label, "Japan" for Used in France	AB
	TSPC-0968AFZZ	Label, Specification (DX-3) for Canada	
	TSPC-1026AFZZ	Label, Specification (DX-3) for USA	
	TSPC-0980AFZZ	Label, Specification (DX-3S) for Canada	
	TSPC-1027AFZZ	Label, Specification (DX-3S) for USA	
	TSPC-0966AFZZ	Label, Specification (DX-3)	AB
	TSPC-0979AFZZ	Label, Specification (DX-3S)	AC
	TCAUS0160AFSB	Label, Laser Caution	

* Not used for USA

P.W.B. ASSEMBLY (Not Replacement Item)

DUNTJ0076AF03	Power Supply Unit Section (Combined Assembly)	—
DUNTZ0490AF03	Drive Unit Section (Combined Assembly)	—
DUNTZ0492AF03	Servo Unit Section (Combined Assembly)	—
DUNTZ0494AF03	Demodulator Unit Section (Combined Assembly)	—
DUNTX0078AF03	Display Unit Section (Combined Assembly)	—

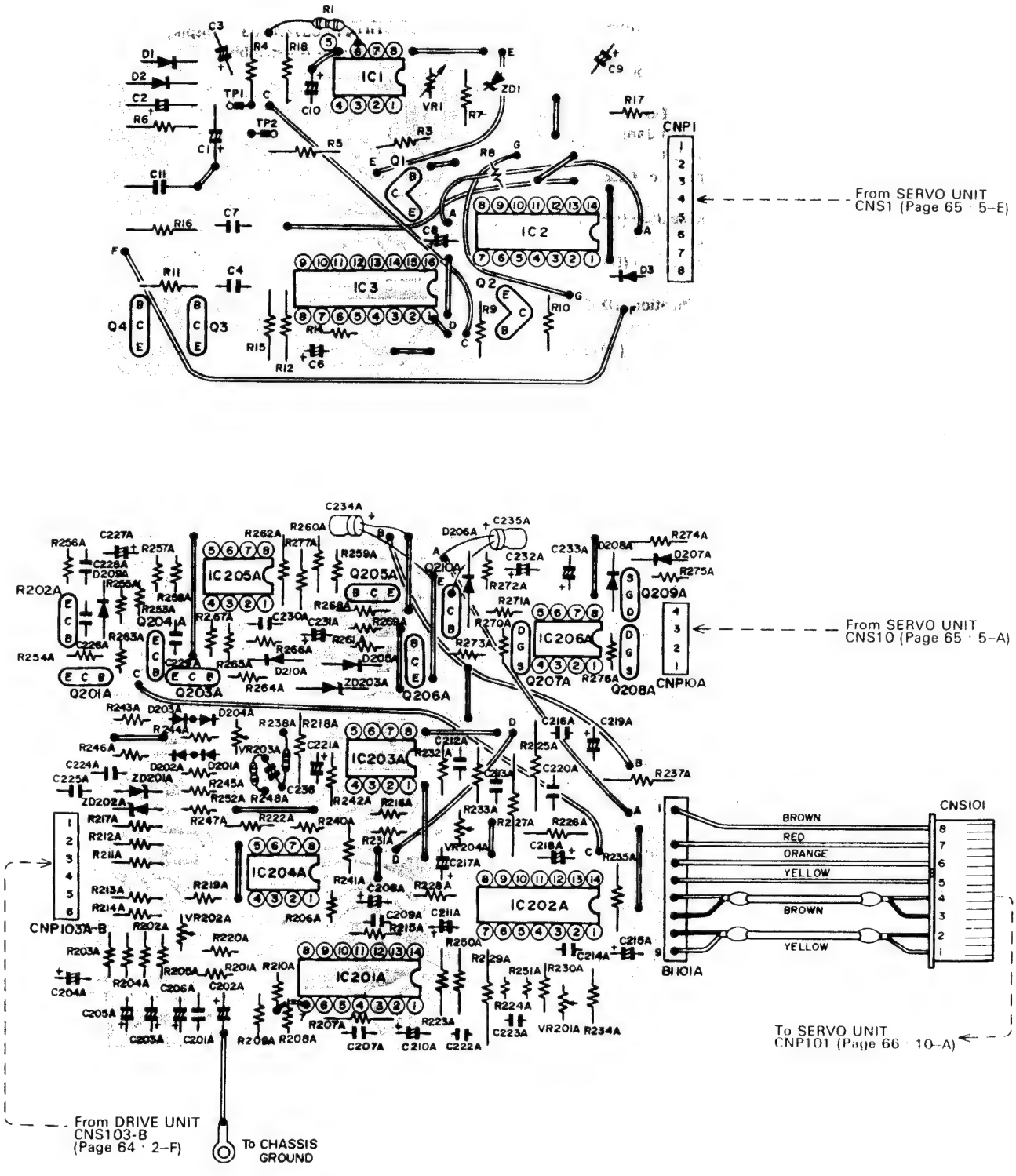
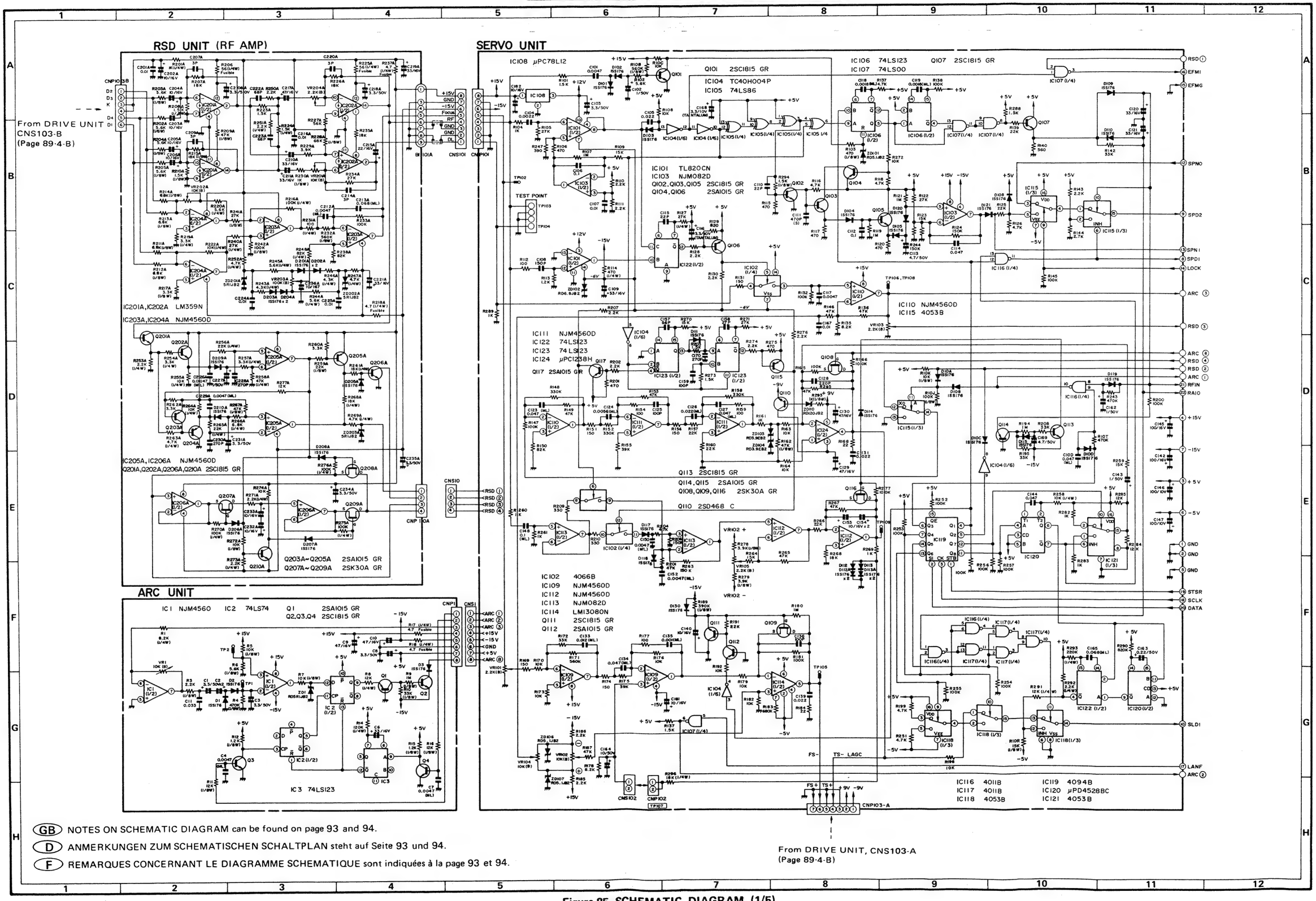


Figure 84 WIRING SIDE OF P.W. BOARD (4/4)



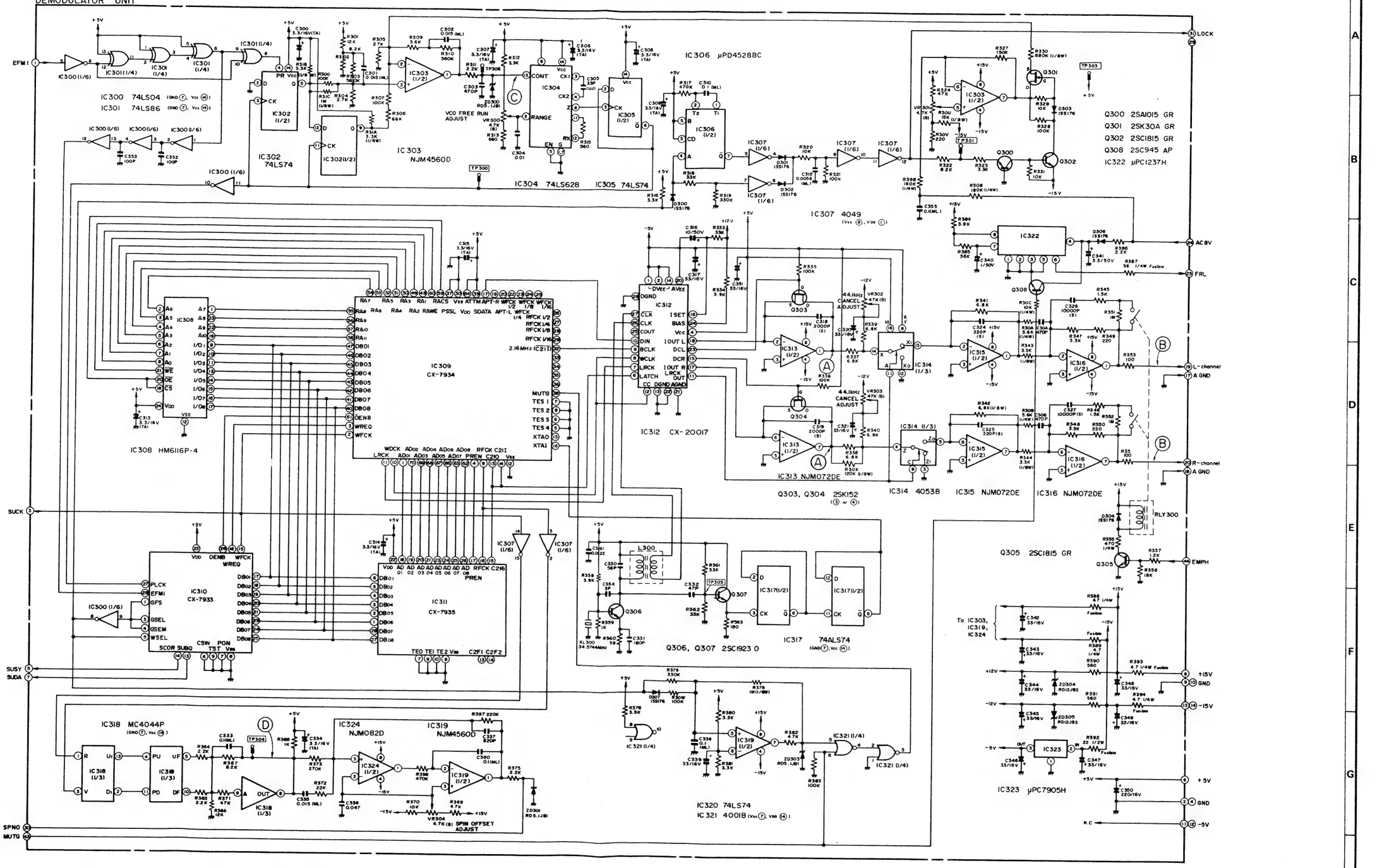
GB NOTES ON SCHEMATIC DIAGRAM can be found on page 93 and 94.

D ANMERKUNGEN ZUM SCHEMATISCHEN SCHALTPLAN steht auf Seite 93 und 94.

F REMARQUES CONCERNANT LE DIAGRAMME SCHEMATIQUE sont indiquées à la page 93 et 94.

Figure 85 SCHEMATIC DIAGRAM (1/5)

DEMODULATOR UNIT



GB NOTES ON SCHEMATIC DIAGRAM can be found on page 93 and 94.

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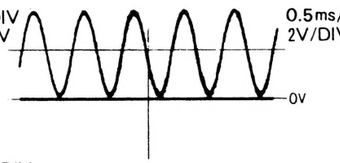
F REMARQUES CONCERNANT LE DIAGRAMME SCHEMATIQUE sont indiquées à la page 93 et 94.

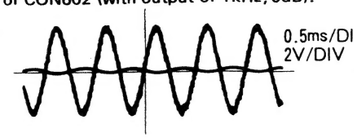
Figure 87 SCHEMATIC DIAGRAM (2/5)

Ⓐ Waveform at pin ① (or pin ⑦) of IC313 (with no signal input).

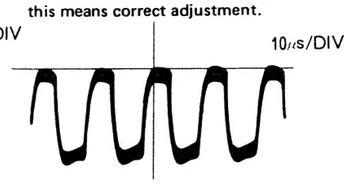
Waveform at pin ① (or pin ⑦) of IC313 (with output of 1kHz, 0dB).



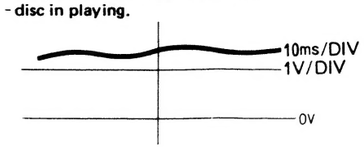
Ⓑ Waveform at pin ⑲ (or pin ⑳) of CON602 (with output of 1kHz, 0dB).



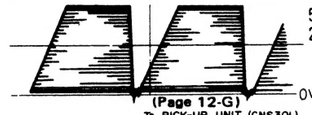
Waveform at pin ⑲ (or pin ⑳) of CON602 (with no signal input): this means correct adjustment.



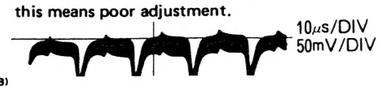
Output waveform at TP304 with - disc in playing.



Waveform at pin ① (or pin ⑦) of IC313 (with output of 1kHz, 0dB).



Waveform at pin ⑲ (or pin ⑳) of CON602 (with no signal input): this means poor adjustment.



(Page 12-G)
To PICK-UP UNIT (CNS301)

(Page 86-8-H)
To SERVO UNIT (CNP103-A)

(Page 85-1-A)
To RF-AMP UNIT (CNP103A-B)

CNS103-A CNS103-B

CNP301 B1402 B1403

LASER ON/OFF SW404

DRIVE UNIT

GR401,GR402 VHPGP1A01//1

Anode Cathode Vcc OUT GND

GR401 GP1A01 GR402 GP1A01

(Page 11-2-E)
From DISP UNIT (CNS403)

CNP403 PUOU PUIN LANF EJECT

Q401,Q402,Q405 2SC1815 GR

Q403,Q404 2SC2120 Y

IC401 NJM2904D

TP401 TEST POINT B1401 PIN CURRENT

CNP402

+9V GND −9V +5V +15V GND

From POWER SUPPLY UNIT (CNS402)

(Page 93-6-E)

To CNS103-A

SLD1 SPD2 SPD1 GND

From MOTHER UNIT (CNS401)

(Page 93-6-C)

CNP401

IC402 μPC1238H IC407 μPC1238H

IC404 (1/4) IC403 (1/4) IC405 (1/2) IC406 M54545L

IC403 4071B (Vss ⑦, Vdd ⑭)
IC404 4011B (Vss ⑦, Vdd ⑭)
IC405 4013B (Vss ⑦, Vdd ⑭)

LOADING MOTOR M403

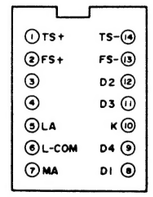
SPIN MOTOR M401

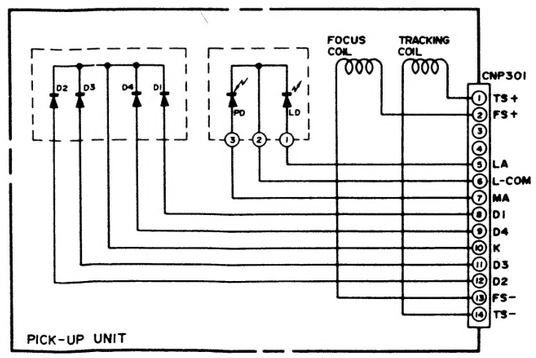
PICK-UP SLIDE MOTOR M402

B1404 SW403 DOOR OPEN CNS404 CNP404 SW401 EJECT SWITCH SW402 DOOR CLOSE

Pins of Pick-Up Socket

Abbreviation	Description
LA	Laser anode
MA	Laser diode (Anode of monitoring detector)
L-COM	Common lead for LA and MA
F_S+	Focus coil input (+ side)
T_S+	Tracking coil input (+ side)
F_S−	Focus coil input (− side)
T_S−	Tracking coil input (− side)
D1 ~ D4	Anodes of beam quartering photoconductive cell
K	Common lead for D1 to D4



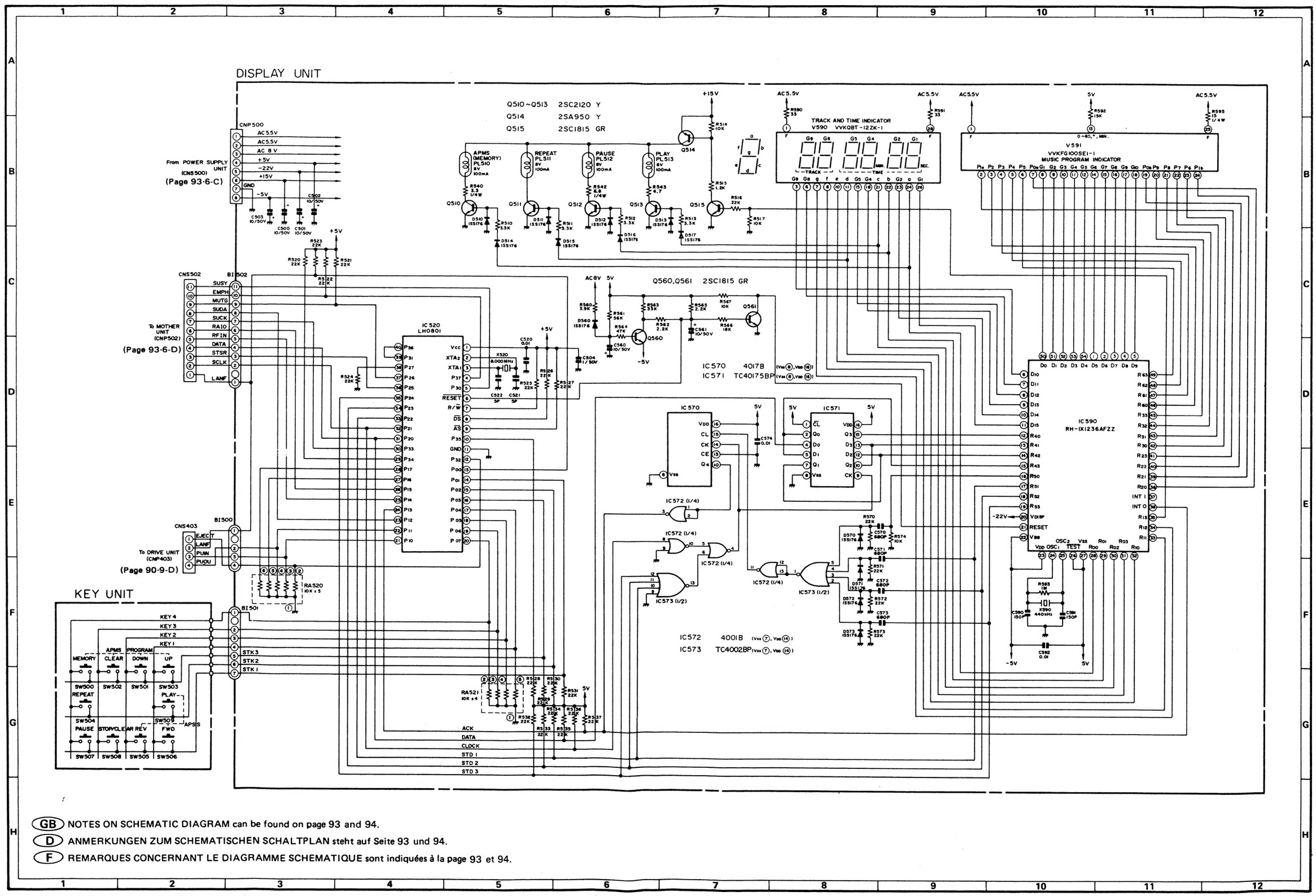


GB NOTES ON SCHEMATIC DIAGRAM can be found on page 93 and 94.

D ANMERKUNGEN ZUM SCHEMATISCHEN SCHALTPLAN steht auf Seite 93 und 94.

F REMARQUES CONCERNANT LE DIAGRAMME SCHEMATIQUE sont indiquées à la page 93 et 94.

Figure 89 SCHEMATIC DIAGRAM (3/5)

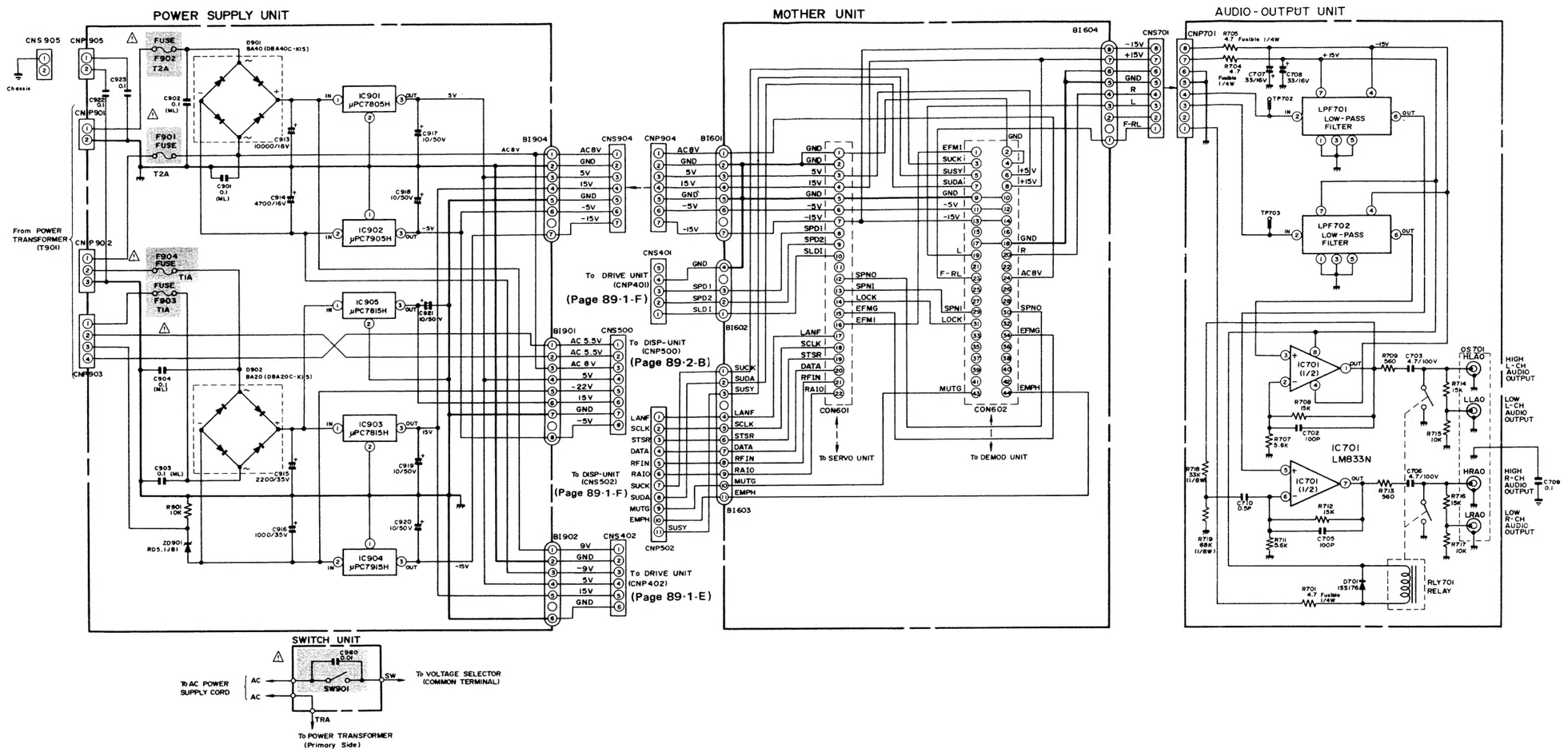


GB NOTES ON SCHEMATIC DIAGRAM can be found on page 93 and 94.

D ANMERKUNGEN ZUM SCHEMATISCHEN SCHALTPLAN steht auf Seite 93 und 94.

F REMARQUES CONCERNANT LE DIAGRAMME SCHEMATIQUE sont indiquées à la page 93 et 94.

Figure 91 SCHEMATIC DIAGRAM (4/5)



(GB) NOTES ON SCHEMATIC DIAGRAM

- Parts marked with "⚠" ( ) are important for maintaining the safety of the set. Be sure to replace these with specified ones for maintaining the safety and performance of the set.
- Resistor: To differentiate the units of resistors, such symbols as K and M are used: the symbol K means 1000 ohms and the symbol M means 1000kohms and the resistor without any symbol is ohm-type resistor. Besides, the one with "Fusible" is a fuse type.
- Capacitor: To indicate the unit of capacitor, a symbol P is used; this symbol P means micro-microfarad and the unit of the capacitor without such symbol is microfarad. As to electrolytic capacitor, the expression "capacitance/ withstand voltage" is used;
  ML → Mylar capacitor
  S → Styrol capacitor
- The indicated voltage in each section is the one measured by electronic voltmeter between such a section and the chassis with no signal given.
- Specifications or wiring diagrams of this model are subject to change for improvement without prior notice.

(D) ANMERKUNGEN ZUM SCHEMATISCHEN SCHALTPLAN

- Die mit ⚠ ( ) bezeichneten Teile sind besonders wichtig für die Aufrechterhaltung der Sicherheit. Beim Wechseln dieser Teile sollten immer die vorgeschriebenen Teile verwendet werden, um sowohl die Sicherheit als auch die Leistung des Gerätes aufrechtzuerhalten.
- Widerstände: Um die Einheiten der Widerstände unterscheiden zu können, werden Symbole wie K und M benutzt. Das Symbol K bedeutet 1 000 Ohm und das Symbol M 1 000 Kilo-ohm; Bei Widerständen ohne Symbol handelt es sich um ohmsche Widerstände. Außerdem sind die mit "Fusible" beseichneten Widerstände Schmelzsicherungstypen.
- Kondensatoren: Zum Bezeichnen der Kondensatoreinheit wird das Symbol P benutzt; dieses Symbol P bedeutet Nanofarad. Die Einheit eines Kondensators ohne Symbol ist Mikrofarad. Für Elektrolytkondensatoren wird die Bezeichnung "Kapazität/Stehspannung" benutzt.
  ML → Mylarkondensator
  S → Styrolkondensator
- Die in den einzelnen Teilen angegebenen Spannungen werden mit einem elektronischen Voltmeter zwischen dem betreffenden Teil und dem Chassis ohne Signalzuleitung gemessen.
- Änderungen der technischen Daten oder Verdrahtungspläne dieses Modells im Sinne der Verbesserung jederzeit vorbehalten.

(F) REMARQUES CONCERNANT LE DIAGRAMME SCHEMATIQUE

- Les pièces marquées d'un ⚠ ( ) soit importantes pour maintenir la sécurité de l'appareil. S'assurer de bien les remplacer par des pièces spécifiées afin de conserver à l'appareil sa sécurité et sa performance.
- Résistance: Pour différencier les unités de résistances, on utilise des symboles tels que K et M: le symbole K signifie 1000 ohms, le symbole M 1000 Kohms, et la résistance de type ohm. En outre, celle qui est dotées de "Fusible" est de type à fusible.
- Condensateur: Pour indiquer l'unité de condensateur, on utilise le symbole P; ce symbole P signifie micro-microfarad, et l'unité de condensateur donnée sans ce symbole est le microfarad. En ce qui concerne le condensateur électrolytique, on utilise l'expression "tension de régime/capacité";
  ML → condensateur Mylar
  S → condensateur Styrol
- La tension indiquée dans chaque section est celle mesurée par le voltmètre électronique entre la section en question et le châssis, en l'absence de tout signal.
- Les caractéristiques ou diagrammes de câblage sont susceptibles d'être modifiés, à des fins d'amélioration, sans aucun préavis.

Figure 93 SCHEMATIC DIAGRAM (5/5)

SHARP

SERVICE MANUAL/SERVICE-ANLEITUNG/MANUEL DE SERVICE

- In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.
- Im Interesse der Benutzer-Sicherheit sollte dieses Gerät wieder auf seinen ursprünglichen Zustand eingestellt und nur die vorgeschriebenen Teile verwendet werden.
- Dans l'intérêt de la sécurité de l'utilisateur, l'appareil devra être reconstitué dans sa condition première et seules des pièces identiques à celles spécifiées, doivent être utilisées.

S03C0DX-3HB//

DX-3HB

Ⓔ

This new model DX-3HB is the same as the former model DX-3, only with a difference on the surface color. For other details please refer to the already issued Service Manual for the DX-3.

Ⓓ

Dieses neue Modell DX-3HB ist fast gleich wie das vorige Modell DX-3 mit Ausnahme vom Unterschied in der Oberflächenfarbe. Für andere Einzelheiten sehen Sie die bereits herausgegebene Service-Anleitung für DX-3.

Ⓕ

Ce nouveau modèle DX-3HB est identique au modèle antérieur DX-3 sauf une seule légère différence sur la couleur de la surface. Pour les autres détails, veuillez vous reporter au Manuel de Service déjà publié pour le DX-3.

DIFFERENCE BETWEEN DX-3 AND DX-3HB

UNTERSCHIEDE ZWISCHEN DX-3 UND DX-3HB

DIFFÉRENCE ENTRE DX-3 ET DX-3HB

REF.NO.	DX-3		DX-3HB		DESCRIPTION
	PART NO.	CODE	PART NO.	CODE	
201	CPNLC3536AF02	BN	CPNLC3543AF42	BN	Front Panel Sub-Assembly
201-1	GMADM0021AFSA	AS	GMADM0022AFSB	AS	Indicator Window
201-2	HPNLC3536AFSA	BA	HPNLC3543AFSB	BA	Front Panel
201-3	JKNBR0209AFSA	AG	Same as DX-3		Button, APMS Input (MEMORLY, CLEAR, UP, DOWN).
201-4	JKNBR0210AFSA	AH	Same as DX-3		Button, REPEAT, PAUSE, REV, FWD, EJECT
201-5	JKNBR0211AFSA	AH	Same as DX-3		Button, STOP/CLEAR, PLAY
201-6	LX-LZ0051AF00	AA	Same as DX-3		Push-Rivet, Nylon
201-7	PFILW0037AFSA	AK	Same as DX-3		Indicator Filter, Small
201-8	PSPAS0154AFSA	AD	Same as DX-3		Button Spacer, Power
201-9	PSPAS0155AFSA	AG	Same as DX-3		Button Spacer, EJECT
201-10	PSPAS0156AFSA	AD	Same as DX-3		Button Spacer, Operation
201-11	PSPAZ0118AFZZ	AB	Same as DX-3		Cushion, Operation Button
201-12	PSPAZ0119AFZZ	AA	Same as DX-3		Cushion, EJECT Button
201-13	PSPAZ0126AFZZ	AB	Same as DX-3		Lamp Spacer
201-14	PSPAZ0138AFZZ	AA	Same as DX-3		Cushion, Indicator
201-15	PSPAZ0139AFZZ	AB	Same as DX-3		Cushion, Indicator
201-16	PSPAZ0140AFZZ	AA	Same as DX-3		Cushion, Indicator
201-17	PSPAZ0141AFZZ	AA	Same as DX-3		Cushion, Indicator
201-18	PFILW0039AFSA	AA	Same as DX-3		Indicator Filter, Large
201-19	GCOVA0173AFSA	AM	Same as DX-3		Cover, Indicator
201-20	LANGQ0876AFZZ	AC	Same as DX-3		Bracket, Display PWB Support
201-21	PSPAZ0135AFZZ	AD	Not Used		Spacer, Front Panel
201-22	PSPAZ0136AFZZ	AD	Not Used		Cushion, Front Panel
201-23	PSPAZ0137AFZZ	AD	Not Used		Cushion, Front Panel
201-24	Not Used		HBDGB0019TASA	AE	Badge, 'SHARP'
202	CPNLC3537AF02	AK	CPNLC3544AF42	AK	Disc Door Sub-Assembly
202-1	HBDGB0019TASA	AE	Not Used		Badge, 'SHARP'
202-2	HDECQ0185AFSA	AE	Not Used		Badge
202-3	HPNLC3537AFSA	AN	HPNLC3544AFSB	AN	Door Panel (Top)
202-4	HPNLC3538AFSA	AT	HPNLC3545AFSB	AT	Door Panel (Bottom)
202-5	GMADC0055AFSA	AS	GMADC0056AFSB	AS	Window, Disc Door, Acryl
202-6	HDECC0069AFSA	AM	Same as DX-3		Metal Ornament, Door Left Side
202-7	HDECC0070AFSA	AM	Same as DX-3		Metal Ornament, Door Right Side
202-8	LANGK0339AFZZ	AB	Same as DX-3		Bracket, Door Left Side
202-9	LANGK0340AFZZ	AB	Same as DX-3		Bracket, Door Right Side
216	JKNBM0485AFSA	AH	JKNBM0485AFSB	AK	Button, Power
	SPAKC2414AFZZ	AM	SPAKC2644AFZZ	AM	Packing Case
	TINSZ0477AFZZ	BB	TINSZ0552AFZZ	AY	Operation Manual
	TLABH0168AFZZ	AB	TLABH0179AFZZ	AB	Label, Door Caution
	TSPC-0966AFZZ	AB	TSPC-1065AFZZ	AC	Label, Specification

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